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WOMEN in Agriculture in Pakistan

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WOMEN in Agriculture in Pakistan

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A handwritten signature in black ink, appearing to read 'Sikandar Hayat Khan Bosan'.

Sikandar Hayat Khan Bosan
Federal Minister of National
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Foreword

In Pakistan, women make significant contribution to agriculture production, processing, and marketing. Still they face formidable obstacles to their potential role as a major economic and social force in the development of the agricultural sector. Among the problems that constrain the development of women's potential are heavy workloads, lack of access to factors of production (land, credit, water, technology), lack of training opportunities and access to advisory services. There are additional constraints, such as poor and inefficient storage, lack of cold chain, weak transport and marketing mechanisms, which further affects their income.

Policy makers are aware that there is a need to improve role of women in Pakistan's economic and agriculture development but still much needs to be done.

Contribution of women to agricultural development should be maximised by implementing solutions to the specific social, economic, legal, and cultural problems they encounter. Attention should be paid to strengthen the economic dimension of women's work in rural areas, to entrepreneurial factors and to those sectors that are directly related to rural women farmers.

This report by the Food and Agriculture Organization of the United Nations highlights overall status, challenges and contribution of women in sub sectors of agriculture and gives a road map for further improving these across the four provinces and three regions of Pakistan. The report's recommendations focus on the means of enhancing economic impact of women's work in agriculture, the value of promoting socio-cultural factors such as education, literacy, and nutrition, the need to enhance their legal status, and policy and institutional strategies that will promote income-generating activities for rural women farmers.

In line with the federal government's policy, the Ministry of National Food Security and Research will continue to support agriculture development in Pakistan directly and in partnership with the development partners, mainstreaming women, in order to better recognise and promote the economic role of rural women in agriculture.



Patrick T. Evans
FAO Representative,
Pakistan

Foreword

Ensuring global food security is the priority of FAO. As per the FAO 2013 report on Food Insecurity in the World, around 842 million people, or around one in eight people in the world, were suffering from chronic hunger, and were not getting enough food to conduct an active life. Among the different dimensions of food security, poverty plays an important role in decreasing the access to food in economic terms. Country-level results suggest that poor dietary quality is often associated with poor utilization outcomes, in particular with high stunting rates, i.e., 43 percent in Pakistan. It has been noted that balanced diets are not available to the poorer segments of the population, which rely heavily on a few carbohydrate-rich staples. Therefore strong efforts are needed in the agriculture sector to improve household food security and access to more diverse and nutritious food.

Directly as farmers, or indirectly as wage labourers, the majority of people in Pakistan are connected to agriculture and many face food insecurity. This report highlights the fact that the agriculture sector is underperforming in Pakistan and one of the key reasons is that women do not have equal access to resources and opportunities they need. The report clearly confirms that we must promote gender equality and empower women in agriculture to reduce extreme poverty and gender discrimination. The importance of investing in rural women as a channel for progressive change is significant. At the same time, as cultural realities come into play, the achievement of greater empowerment and equality also implies a strong engagement with both men and women as is highlighted in the FAO Policy on Gender Equality 2013.

This report not only identifies the potential areas to be explored but also suggests guidelines for policy initiatives along with provincial and regional assessment. The issues highlighted are more of generalized nature and applicable to the whole of country along with some that are province and/or region specific.

It is recommended that a main thrust of the federal and provincial governments in Pakistan should be the development of domestic institutional capacity that permits development and application of modern agricultural practices. Empowerment of rural women farmers is central to sustainable agriculture development and food security for the country. We hope this report will contribute toward this end.

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The initiative also benefitted from the feedback received from development partners including the United Nations (UN) agencies working in Pakistan, provincial and regional governments, and civil society organizations. In addition, the final draft report was reviewed by Mr Nasar Hayat, Assistant Representative (Programmes) FAO Pakistan and by Ms Rosa Rolla, Senior Agro-Industries and Post-harvest Officer, FAO Bangkok.

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Acronyms

AARI	Ayub Agricultural Research Institute Faisalabad
ADBP	Agriculture Development Bank of Pakistan
AJK	Azad Jammu and Kashmir
AKDN	Agha Khan Development Network
AKPBS	Agha Khan Planning and Building Services
AKRSP	Agha Khan Rural Support Programme
BARI	Barani Agricultural Research Institute Chakwal
BMI	Body Mass Index
CBOs	Community Based Organizations
DOA	Department of Agriculture?
DRM	Disaster Risk Management
ESMA	Extension Services Management Academy
FAO	Food and Agriculture Organization of the United Nations
FATA	Federally Administered Tribal Area
FR	Frontier Region
FYM	Farm Yard Manure
GB	Gilgit Baltistan
GBDMA	Gilgit Baltistan Disaster Management Authority
GDP	Gross Domestic Product
GBLA	Gilgit Baltistan Legislative Assembly
IFAD	International Fund for Agricultural Development
INGO	International Non Government Organization
IPM	Integrated Pest Management
IQF	Individual Quick Frozen
KKH	Karakoram Highway
KP	Khyber Pakhtunkhwa
LSO	Local Support Organization
MT	Metric Tons
NARC	National Agriculture Research Council
NDMA	National Disaster Management Authority

NGO	Non Government Organization
NNS	National Nutrition Survey
NRM	Natural Resource Management
NTFP	Non Timber Forest Products
PARC	Pakistan Agriculture Resource Centre
PAs	Political Agents
PSDP	Public Sector Development Programme
UCs	Union Councils
UN	United Nations
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
UNDP	United Nations Development Program
UNICEF	United Nations International Children Emergency Fund
WAE	Women Agricultural Extensionists
WES	Women Extension Service
WFP	World Food Program
WOs	Women Organizations
WOS	Women Open School

Executive Summary

Pakistan is a country with a great deal of diversity in culture, traditions, habits, attitudes and practices across its various provinces and regions, although there are similarities as well. So when the broad term of “Women in Agriculture” is used, it may not highlight the extensive and diverse role that women play in agriculture in one province or slightly limited and more specific role that women have in other provinces or regions. The role and responsibilities of women change as the geographic area changes, along with changing local customs and traditions. Even the gender roles, food and nutrition practices vary across different areas, ethnic groups as well as ecological zones.

All these aspects result in different as well as similar kinds of constraints and challenges faced by women farmers in agriculture across the four provinces and three regions of Pakistan which are discussed in the specific chapters. In light of these constraints, certain key recommendations are given mainly focusing on promoting gender equality and empowerment of women in agriculture and identifying means of enhancing economic impact of women’s work in agriculture, improving household food security and nutrition. The value of promoting socio-cultural factors such as education, literacy, and nutrition practices, the need to enhance their legal status, and policy and institutional strategies for investing in rural women as a channel for progressive change are also highlighted in the chapters.



Women in Agriculture in Azad Jammu and Kashmir (AJK)

The chapter describes that average farm size and land holdings are quite small in AJK and cannot provide sufficient food to the farm family, particularly when production technologies used are quite primordial. Women are major contributors in all farm related activities in general and crop processing in particular. They are almost solely involved in livestock and poultry management, vegetable production especially kitchen gardening, fuel wood collection, and household chores. Access to and control over resources, benefits, and participation in decision making in a “typical” small farmer household is dominated by men. In addition to natural or traditional constraints like small land holding, limited irrigation facilities, etc., the specific gender related constraints and limitations to women that hamper increasing agriculture production are lack of awareness about improved technologies, limited women extension services, rain-fed agriculture, non-integration of service providing agencies, low skills in value addition and marketing, terraced farming, and non recognition of women inputs in agriculture production and household income. In order to address these issues, public sector and donor funded programs and projects need to be gender sensitized to ensure gender mainstreaming while setting objectives, planning activities and should be implemented with clear guidelines on promoting women development. Women extension services should be expanded throughout AJK along with skill development and capacity building of women farmer leaders especially in value addition, innovative and improved marketing practices, agro-based cottage industry to reach farming communities and there is greater need that enormous contribution being made by the women in all agricultural, livestock, poultry and other livelihood activities be recognized at the household, community and government level.



Women in Agriculture in Balochistan

This chapter highlights that rural women have a high rate of participation in diversified activities related to crops and livestock production in addition to their domestic responsibilities. They are solely responsible for weeding, seed cleaning, drying, and storage of crops. They are also involved in cotton picking and preparation of processed foods. Women from Kalat and Khuzdar regions possess rich history and culture of using medicinal plants for treating many ailments. Women work and produce on land mostly owned by men who enjoy a strong social and economic standing as compared to women. Other factors that limit women to improve their income and

social status include lack of access to credit, gender bias in transfer of new technologies and required training, and lack of access to education. There is a need to encourage creation of small rural agro-based industries that can help diversify the use of agricultural resources and generate employment for rural women. It is also suggested that land reforms should be undertaken to guarantee joint ownership of agricultural land by both men and women and participation of women in accessing markets. Currently, women's participation in running the state functions is minimal in Balochistan and necessary reforms should be undertaken by the government that promote induction of women workers in government and particularly in women specific departments.

Women in Agriculture in Federally Administered Tribal Areas (FATA)

The chapter highlights the role of women in FATA in agriculture, livestock rearing, agro-forestry, food diversification and assisting the male members of their families in income generating activities. The tribal areas have clearly defined socio-cultural boundaries beyond which women are not allowed to venture. Their basic needs are met through their male family members. Outside the household, they have limited educational, health, social and recreational facilities. In order to empower women, FATA Development Authority has established skill development centres in different agencies and Frontier Regions (FRs), mainly focusing on handicrafts making but there is a need to widen its role and include skills enhancement especially in kitchen gardening, livestock and poultry management, food processing and preservation. The chapter emphasizes the need to harmonize a policy for FATA to ensure equity and empowerment of women farmers including provision of rights to women for land title and access to basic social services including education, health and nutrition, sanitation, clean drinking water, etc. Nutrition awareness is also needed to improve the eating habits and dietary practices thereby improving the health of women and children.

Women in Agriculture in Gilgit Baltistan (GB)

This chapter describes that Gilgit Baltistan has agro-pastoral economy and women play a significant and crucial role in agriculture development and its allied fields including crop production, livestock management, horticulture, post-harvest operations, agro and social forestry, etc. They are major producers of food in terms of value, volume and number of hours worked. The forest policy of 1997 envisaged the involvement of rural stakeholders in the development and management of forests but did not include women. Over a period of three decades, women in Gilgit Baltistan have organized themselves into village-based organizations to take up their own development initiatives. Whilst men have season based specific work, women have a continuous work cycle and their workload increases in the summers due to harvest. Integrated farming systems prevail due to small land holding and women do not have a secure entitlement to land and asset ownership. There is a need to translate women's workload into monetary terms and women's participation in community land distribution decisions should be encouraged. Women should also be involved as active committee members for conservation of natural resources and high pastures land. Small scale dairy farming and processing activities for rural women need to be up-scaled along with capacity building in animal healthcare.

Women in Agriculture in Khyber Pakhtunkhwa (KP)

The chapter highlights that agriculture in KP employs about 50 percent of the labour force in the province and contributes 40 percent of its GDP. The province does not have high milk and meat yielding large ruminants species that affect women's incomes because they are mainly involved in livestock management. Women's access and control over productive resources is limited. Lack of skills, limited opportunities in the job market, and social and cultural restrictions limit women's access to public resources and markets. Smallholder farmers, especially women, should be supported in agriculture production through provision of agriculture inputs, technical capacity building and introduction to climate smart agriculture practices. There is a need to hire more lady extension and animal health workers in the government system to improve access to rural women and help them in improving their crop and livestock production. Establishment of school nurseries to introduce knowledge on agriculture and nutrition and women entrepreneurial skill development along with facilitation in access to agriculture markets are other areas that need to be focussed upon. Women farmers also need to be engaged in agro-forestry and developing nurseries.

There is a need to hire more lady extension and animal health workers in the government system

Women in Agriculture in Punjab

This chapter highlights that women in Punjab are engaged in agricultural development through participation in farm operations and livestock farming but many a times, they lack authority in decision making due to patriarchal society that limits their role and gives more authority to men in decision making. Women spend around 12 to 15 hours daily on agricultural activities. The farm work of the women is usually ignored, unpaid, and not counted as an economic activity. Women farmers work burden and financial constraints further increase due to increasing impact of climatic changes and disastrous situations when standing crops, livestock

and other cash assets are ruined in flood, droughts and earthquakes. Unfortunately, there is no effective resilience mechanisms adopted by women farmers as they lack access to information on this. All agronomic activities are conducted conventionally and manually by women farmers. Women also lack access to microcredit, agricultural information, agricultural training, and extension services. There is need to improve women's education and provide on-farm educational opportunities and training so that they can develop and improve their farm management skills. Women's access to agricultural machinery, finance, and market information needs to be enhanced especially in vegetable gardening, fruit production, livestock management, and food processing and preservation. Women's inclusion in agriculture market committees of Punjab is also recommended.

Women in Agriculture in Sindh

The chapter describes that men and women farmers are involved in multiple sources of agriculture based livelihoods in Sindh and majority of them are either small subsistence farmers or tenants. Women in Sindh are involved in crop production from sowing to harvesting stages, livestock rearing, and other allied fields in agriculture. During the last two

decades, many people, mostly men migrated from rural to urban areas of Sindh or abroad in order to improve their income possibilities and to avoid exploitation from local landlords. This has substantially increased the role of women in both on-farm and off-farm activities along with greater work burden and responsibilities. Disparities in daily wage rates and working hours of women and men are high. In order to address these issues, rural women farmer focussed promotional activities should be started in rural Sindh on a public private partnership basis providing rural women farmers a platform for marketing and generating profits. Agriculture extension training programs need to be conducted at the Union Council or village level rather than in towns and cities. Government and private sector should facilitate women in promoting cottage industry through skills development and providing easy access to finance. Difference between women and men's wage rates for the same work should be minimized.

Based on the analysis of different provinces and regions in this report, the concluding chapter suggests the key recommendations to address the needs of women farmers for greater gender equality and advancement in agriculture development. The public sector at the provincial and regional level in collaboration with development partners, private sector, and key stakeholders should focus on improving agriculture productivity, employment, and incomes of agriculture farmers and entrepreneurs with a special focus on women through provision of technical assistance, improved technology, financial services, market linkages, information, etc.



Introduction

The record of development over the last three decades shows that dynamic agricultural growth has been in many countries an important contributor to economy-wide growth that permits the conquest of hunger, malnutrition and a sustained improvement in living standards. Reinforcing the potential for poverty alleviation of agricultural growth in Pakistan is the fact that agriculture-based work is the main economic activity for a large population living in rural areas of Pakistan.¹ Within this context, women's contribution is significant in the agricultural productivity and ensuring household food security and the available statistics indicate that 72 percent of women are associated with agriculture sector out of the total women labour force in Pakistan.²

According to World Bank statistics, 1.4 billion people live below the poverty line defined by the income threshold of \$1.25/day worldwide³. Global Poverty is mainly a rural phenomenon and around 900 million of the world's poor live in the rural areas⁴. The Food and Agricultural Organization of the United Nations (FAO) has also supported this fact. As per the FAO's 2002 report, 75 percent of the world's poor live in the rural areas and are dependent upon agriculture for their subsistence⁵.

30%
of the Pakistan's
population lives
below the
poverty line.
World Bank poverty
estimates for 2010

Pakistan has an estimated population of 184 million⁶. According to World Bank poverty estimates for 2010, 30 percent of the population lives below the poverty line. This means that Pakistan houses around 50 million of the world's poor. Yet again, in line with the global trend, the greatest concentration of poor is in rural areas. The incidence of poverty is also much higher in rural areas than that in the urban areas. Adam Smith's observation that "No society can surely be flourishing and happy, of which the far greater part of the members are poor and miserable"⁷ is an apt representation of present day Pakistan.

Sixty percent of Pakistan's population lives in rural areas. Directly, as farmers, or indirectly, as wage labourers and service providers, the vast majority of these people are connected to agriculture. With a GDP contribution of around 21 percent, the agricultural sector employs around 45 percent of the labour force⁸. The mismatch between these figures indicates the low labour productivity in this sector. Low labour productivity is mainly a consequence of

1 Omer Farooq, Economic Survey of Pakistan (2009)

2 Labour Force Survey, Government of Pakistan, 2012-2013

3 S. Chen and M. Ravallion, 'The developing world is poorer than we thought, but no less successful in the fight against poverty'

4 E. Tollens, 'The challenges of poverty reduction with particular reference to rural poverty and agriculture in Sub-Saharan Africa' (Paper presented at 2002)

5 S. Broca, 'Food insecurity, poverty and agriculture: a concept paper' (2002) Agriculture and Economic Development Analysis Division. Rome, FAO

6 Omar Farooq, Economic Survey of Pakistan (2009) Government of Pakistan

<http://www.finance.gov.pk/survey/chapter_10/02_Agriculture.pdf>

7 Adam Smith, 'Chapter 1' in Book 8 (1776)

8 Omar Farooq, Economic Survey of Pakistan (2009) Government of Pakistan

<http://www.finance.gov.pk/survey/chapter_10/02_Agriculture.pdf>

primeval agricultural practices resulting from a lack of resources, poor investment in inputs due to lack of credit availability and reticent management techniques due to the absence of modern technology.

Pakistan's two largest export earners are textiles and agro-food products

Agriculture is not just the largest employer of the labour force but also provides raw materials for the manufacturing sector, which produces the country's export goods. Pakistan's two largest export earners are textiles and agro-food products. Accounting for over 70 percent of Pakistan's export earnings⁹, both of these depend heavily on agriculture and land productivity. Agriculture therefore holds a pivotal position in Pakistan's economy, and in programmes directed at producing economic growth. Increased agricultural growth would provide fiscal space to the government to ensure country's food sufficiency and to spend more on social development and on improving the lives of Pakistanis.

Slow growth in the agricultural sector is a significant factor in perpetuating poverty in the rural areas of Pakistan. Slow agricultural growth is a result of the prevailing subsistence agricultural practices prevalent in Pakistan.

From the 1960s to the late 1980s sector output grew, but little was done to reduce post-harvest losses or add value

Pakistan's agriculture sector consists of three main subsectors: cereal and fibre crops, horticulture and orchards, livestock and dairy. From the 1960s to the late 1980s sector output grew, thanks to high yielding varieties and fertilizer-responsive crops and the expansion of the land base and irrigation water supply. But little was done to reduce post-harvest losses or add value. Since 1990 farmers have put more land under food crops, oilseed, orchards, and horticulture. But rising food crop yields are, on average, still lower than elsewhere in the region and much lower than yields in developed countries. Total factor productivity is stagnant. Technical change and value addition have been slow for a number of reasons: low investment in research and development, in developing or disseminating higher productivity packages, in maintaining an effective agricultural education and extension system, and in maintaining physical infrastructure. Problems are compounded by resource degradation and the dominance of the public sector in agricultural trade and price controls.

Pakistan depends heavily on staple crops for its food security (mainly in the form of wheat flour) and is the basis for its agricultural economy. It is an interesting feature of the market for agricultural crops that prices of other crops and food prices generally move very closely with wheat prices. Essentially Pakistan's agriculture is a wheat-cotton rotation with other crops fitting in where they can in the seasonal rotation. Developing the staple crops area is essential for the maintenance of food security, civil stability and the overall growth of agricultural GDP.

⁹ Trade Development Authority of Pakistan (2010) <<http://67.228.155.189/statistics.php>>

Pakistan can produce more than enough staple food (especially wheat) to feed its population with a surplus left over for regional exports (mainly to Afghanistan which has a food deficit). However, crop failures (e.g., from poor seed, bad cultivation practices, disease) and an inefficient marketing system at all levels (including processing) lose much of the potential crop¹⁰.

Wheat is grown in the winter-spring season (rabbi) in all regions, irrigated or non-irrigated (barani). In summer season, (kharif) various crops are grown depending on the agro-climatic zone. Rice, maize, and cotton, are the major kharif season crops and sugar is a multi-year crop grown in combination-rotation with wheat in certain areas. All crops in Pakistan have low average yields. Research stations and progressive farmers achieve significantly higher yields than the average and the potential for improvement is clearly understood. Average wheat yields can be significantly increased with the application of “best practices.”¹¹

Crop residues (e.g., wheat straw, rice bran) and fodder crops (e.g., barseem, alfalfa) are the main animal feed sources. Livestock rearing is a major part of farming systems and is a critical element in the livelihood strategies of the poor and women. Buffalo, cattle, sheep and goats are raised on farms everywhere. Livestock are particularly important in the barani (rain fed) areas. The production of legume fodder crops is an important aspect of the improved farming practices advocated by scientists and progressive farmers.¹²

Pakistan has a huge and unrealized potential for growing a large diversity of horticulture crops (fruits, vegetables and flowers). Many of the crops are grown in politically sensitive or unstable northern and western areas of the country including Azad Jammu and Kashmir (AJK). Horticulture provides a considerable opportunity for value-added and for exports, but the large orchards of mango and citrus (kinnow – a variety of mandarin orange) employ many people (especially women) in the heartland of Pakistan (lower Punjab and upper Sindh).

As with other crops, it is the Punjab province that dominates the bulk of the production of both fruits and vegetables, accounting for 63 percent of fruits and 60 percent of vegetables¹³. Citrus is produced in the largest volume around Sargodha and forms the basis for a commercial juice industry in that area. Mango is also heavily produced in Punjab and Sindh and comprises the second largest volume of fruit. It is consumed mainly fresh. Together these two fruits in Punjab alone account for half of all fruit produced in Pakistan. Balochistan produces the second largest volume of fruit, mainly apple and dates. Sindh is a major producer of mango, bananas and dates. For vegetables, once again Punjab produces the largest volume with the production of potato. This vegetable represents 30 percent of all vegetables produced in Pakistan and is followed by onion¹⁴.

The lacklustre performance of the horticulture industry in Pakistan is due to a multitude of factors. These include old cultivars, poor production practices (e.g., flood irrigation of fruit trees), poor pest management, inadequate harvesting and post-harvest management

10 Studies have estimated losses as high as 50% of the wheat crop from field through to the retailing of flour. See for example “The Wheat-Flour Industry in Pakistan”, Discussion Paper, Competitiveness Support Fund, 2008

11 Historical data produced by MINFA shows that wheat yields increased from 9.2 mounds (40kg)/acre in 1948 to 27 mounds in 2007. This is still below world average levels given that 80% of the wheat is grown under irrigation.

12 Legumes such as beans replace nitrogen in the soil and thus help increase wheat and other cereal crop yields.

13 Pakistan Horticulture Development and Export Board, 2011

14 Pakistan Horticulture Development and Export Board

procedures and a lack of basic and post-harvest specific infrastructure, especially cold storage. In summary, there is not one single aspect of the horticulture industry in Pakistan that is undertaken properly. As a result, the availability of fruit for export and for processing is limited. Much of the exports of Pakistani fruits and vegetables are aimed at the Pakistani overseas population rather than a wider consumer base¹⁵. The marketing system for horticultural produce indicates the clear rewards for providing quality fruits and vegetables.

Livestock has a highest potential for growth and poverty alleviation in Pakistan in the short term

Within the agriculture sector of Pakistan, the livestock sub-sector is also critical to rural livelihoods especially for the small and subsistence farmers and landless rural inhabitants. Livestock represents the largest agricultural opportunity based on farm gate value, and total sector production accounts for 55.4 percent of agricultural GDP or 11.9 percent of total GDP.¹⁶ There are approximately 7 million small rural households who depend on the sub-sector for their livelihoods and majority of them are women who play a critical role.¹⁷ While there are a large number of sellers of milk there are a few discretionary buyers. Women who undertake much of the work in the livestock sector reap little of the returns due to limited mobility and virtually no access

to markets. Livestock has a highest potential for growth and poverty alleviation in Pakistan in the short term. It also has the highest potential for reaching landless women who have few other assets.

The provincial government's should design programs that enhance productivity, employment and incomes of women in the smallholder dairy sector. These programs should address the



¹⁵ For example, spinach is canned and exported with labelling in Urdu.

¹⁶ Pakistan Economic Survey 2012-2013, Government of Pakistan.

¹⁷ Livestock Census 2006. Government of Pakistan.

low level of productivity of dairy animals and assist in enhancing the skills of women and their ability to organize, process and market dairy products.

The fishery sector plays an important role in the national economy. The marine fisheries sector is the main component, contributing about 57 percent in terms of production. Most of the fish produced in Pakistan comes from marine resources with only a minor catch from fresh water or from different small dams. As per latest data, the overall marine catch has varied from 375,000 tons to 450,000 tons in last ten years.¹⁸ In 2006, exports of fish and fishery products represented 1.1 percent of total merchandise trade. Fishery is the most important economic activity in the villages and towns along the coast, and in most of the coastal villages and settlements it is the sole source of employment and income generation. Fresh water and marine fishery resources of the onshore and near-shore Indus Delta employ and feed 180,000 coastal households in Sindh and Balochistan¹⁹. In addition to shrinking shrimp exports, the overall fish catch from the Arabian Sea appears to be declining. Uncontrolled foreign fishing vessels and the contract fishing system are adversely affecting the resources on which the fishery sector depends. The catch is not managed to produce a sustainable yield and its value is not maximized. The root problem is that the responsible institutions do not have the data or capacity to manage the resource properly. The international experience however shows that this sector's performance ultimately hinges on better policy frameworks and efficient management systems for sustainable benefits for the fishermen and the fisheries industry and trade as a whole.

Pakistan's
forest area last
measured at
2.19% in
2010, while
global average is
20%

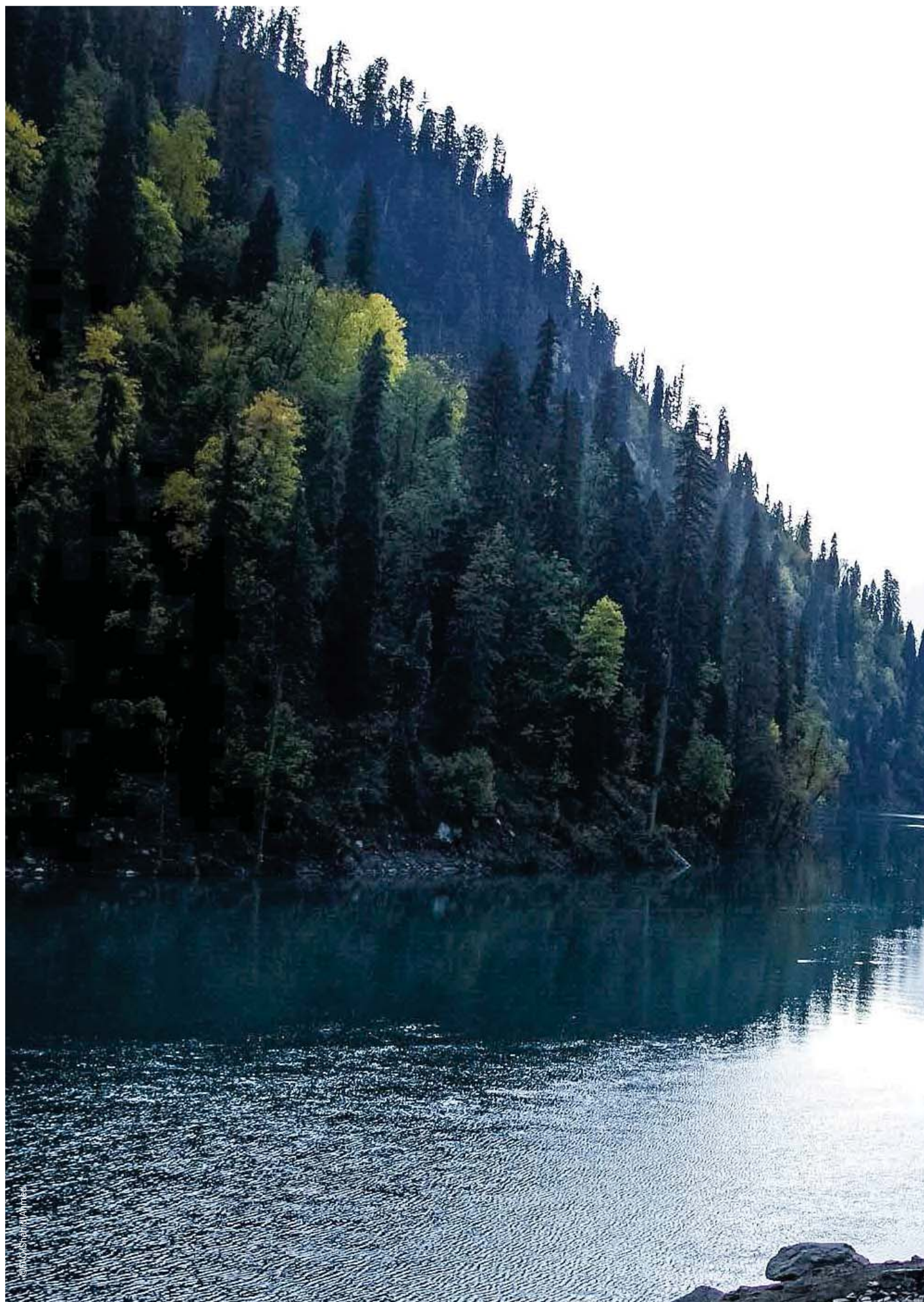
Forests again, within the agriculture sector, are important from an ecological point of view. They help maintain a balance in the environment by reducing pollution, protecting soil erosion by wind or water and intercepting rain fall, particularly on sloping ground. By preventing soil erosion, the trees on the slopes of hills also regulate the supply of water to the reservoirs. Decomposition of leaves helps in humus formation, which maintains soil fertility. From a commercial and industrial point of view, forests provide raw materials to various industries e.g. timber, pharmaceutical, paper. They also have recreational value and promote tourism. Forest area (% of land area) in Pakistan was last measured at 2.19 percent in 2010 according to the World Bank. The global average is far above at 20 percent.

This report on Women in Agriculture in Pakistan;

- Highlights the overall status, challenges and contribution of women in sub sectors of agriculture according to the geographic cultivation patterns and wide range of agriculture related sources of livelihoods, in a particular province or region.
- Provides a road map for the future and design of appropriate programmes and projects to cater for the specific needs of women in agriculture across the provinces and regions in Pakistan.

¹⁸ Vision of Fisheries Sector Balochistan 2013-2020; fisheries Department; Government of Balochistan

¹⁹ Pakistan Fisheries Development Board, <http://www.fdb.org.pk/documents/brief>



WOMEN IN AGRICULTURE IN
AZAD JAMMU & KASHMIR
HAQ NAWAZ KHAN

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Background

Economy is largely dependent on agriculture, services, tourism and remittances sent each year by members of the large Kashmiri diaspora

Azad Jammu and Kashmir (AJK) is a self-governing territory. It was part of the former princely state of Jammu and Kashmir, which ceased to exist as a result of the first Kashmir war in 1947. With its capital at Muzaffarabad, AJK covers an area of 13,297 square kilometres and has an estimated population of about four million²⁰.

The 2005 earthquake left the region in unparalleled devastation. It displaced 3 million people and left 70,000 dead²¹. Since then, with help from Islamabad and foreign donors, reconstruction of infrastructure is underway. Currently, the economy is largely dependent on agriculture, services, tourism and remittances sent each year by members of the large Kashmiri diaspora.



²⁰ The Government of Azad Jammu and Kashmir, <http://www.ajk.gov.pk>

²¹ Earthquake Damage Needs Assessment, 2005.

The climate is sub-tropical highland type, with an average annual rainfall of 150 centimetres. The elevation ranges from 360 meters in the south to 6,325 meters in the north. The snowline in winter is around 1,200 meters above sea level while in summer this rises to 3,300 meters²². The highest peaks in the northern part of the state are always covered with snow and glaciers. Change in the pattern of snowfall, a delay of 1-2 months, has adversely affected the water recharge system and often in summers, many springs dry out causing severe problems for farming communities including shortages of drinking water and water for irrigation.



Education has been a priority for AJK and about 26 percent of its total recurring budget besides 8 percent of the total development budget is allocated to the education sector²³. As a result, the overall literacy rate is 74 percent (84 percent for males and 47 percent for females), while the national literacy rate is 58 percent (70 percent for males and 59 percent for females)²⁴. The Gender Parity Index for primary and secondary education is 1.01 and 0.89 as compared to the national level figures of 0.90 and 0.81 respectively²⁵. Many girls drop out during or after primary schooling, limiting their access to professional jobs. In AJK, the maternal mortality ratio is 201 per 100,000 live births comparatively less than the national figure of 276 per 100,000 live births. The infant mortality rate is 62 per 1,000 live births whereas the proportion of fully immunized children, 12-23 months of age, is 83 percent²⁶.

Area under cultivation in AJK is about 166,000 hectares that is about 13 percent of the total area. Average farm size is 1.2 hectares and about 50 percent of that is not cultivated²⁷.

22 The Government of Azad Jammu and Kashmir, <http://www.ajk.gov.pk>.

23 AJK at a glance, Planning and Development Department, AJK

24 PIHS, 2011-12

25 Pakistan Bureau of Statistics

26 PDHS 2007, Pakistan Millennium Development Goals Report, 2013

27 Planning and Development Department, Government of AJK



A large proportion of farmland is terraced and uncultivable waste whereas average per capita land holding is less than 0.1 hectares²⁸. This is further decreasing with ongoing land distribution due to increase in population and family size.

Major crops in AJK include maize, wheat, rice, and millet and the minor crops include gram, pulses, oil-seeds, and vegetables. Fruits are also grown on an area of about 15,000 acres²⁹. Major fruits grown in AJK include apple, walnut, pear, apricot, plum, peach, lemons, oranges and mangoes. Besides these, there are plenty of wild fruits available that if managed properly, can create substantial profits for the local farmers. These include raspberry, blueberry, strawberry, gooseberry and brambles, wild persimmon, wild apricot, wild pear, wild pomegranate, wild olive, medicinal plants, etc.

The Forest department manages about 0.567 million hectares of forestland. This is about 42.6 percent of the total area as compared to total forest cover in Pakistan. Out of the reported forest area, 0.154 million hectares (11.6 percent) is categorized as commercial forest, 0.224 million hectares (16.8 percent) as degraded forests/ranges and 0.189 million hectares (14.2 percent) as pastures and waste lands³⁰.

Gender disaggregated roles in crop production

As also highlighted above, farm size and land holding are quite small in AJK, making agriculture less profitable given current agricultural practices. Agriculture in AJK is not a profession rather is a way of life. Leaving aside, how much return from a certain crop can be obtained, how scanty production will be, these are grown to meet the traditional and



socio-cultural requirements in a certain situation. People are occupying already scarce land resource for planting cereal crops particularly maize, just to cater for a few months

²⁸ Department of Agriculture statistics, AJK

²⁹ Planning and Development Department, Government of AJK

³⁰ Agricultural Census 2000, Government of AJK & Government of Pakistan.

of need rather than thinking around increasing their profits through using the same land for value added agriculture. In such a farming system, almost every farmer is growing maize, rice, beans and lentils through intercropping and also vegetables, fruit plants, and few forest plants, along with rearing poultry and large and small ruminants. Such an intensified farming system, in an area, where average land holding does not exceed to 1.2 hectares cannot provide enough food to the farm family, particularly when production technologies used are also quite primordial.



Women and men perform different roles in a rural farm set-up. Women are major contributors in all farm related activities in general and crop processing in particular. Women are almost solely involved in livestock and poultry management, vegetable production especially kitchen gardening, fetching fodder and water both for household and livestock use, along with fuel wood collection and preparation. According to IFAD, women farmers in AJK spend 21 percent of their working time on animal care, 27 percent on cooking, 13 percent on fetching water, 3.5 percent on collecting fuel wood, 6 percent on washing and ironing of clothes, 9 percent on house cleaning, 12.5 percent on child care and 3 percent on cultivation of crops. On the other hand, men normally restrict themselves to land preparation, purchase and sale of surplus food and trading of animals and animal by-products³¹.

The outcomes of a brainstorming session on “Gender Mainstreaming in Agriculture” held at Extension Services Management Academy (ESMA), Garhi Dupatta, Muzaffarabad, AJK in June 2013, are presented in Table 1. Data presented in the Table reflects the role and responsibilities of women and men in rural agriculture in AJK.

31 IFAD, 2002, Community Development Project. Pre-Appraisal Report.



Table 1: Role and responsibilities of women, men, boys and girls in rural agriculture in AJK

No.	Activities	Responsibility		Occasionally Performed By
		Women	Men	
A	CEREAL CROPS (Maize/Wheat)			
	Land preparation	0	10	
	Arrangement of fertilizers	2*	8	
	Application of farm yard manure	7	3	
	Cleaning/preparation of seed for sowing	9	1	
	Weeding, hoeing, thinning, green fodder etc.	7	3	
	Harvesting and storage of maize stover	6	4	
	Collection and drying of maize cobs	7	3	
	Harvesting of wheat	3	7	
	Wheat threshing	2	8	
	Storage of wheat straw	2	8	
	Threshing of maize	1	9	
	Cleaning, drying and storage of grains	7	3	
	Cleaning of grain store places/bags/boxes	8	2	
	Marketing surplus, (if any),	2	7	1 (Boy)
	Collection, transportation and storage of fuel wood from nearest forest establishments	7	3	
	Sale of surplus fuel wood	2	8	
	RICE			
	Land preparation for seedlings	0	10	
	Caring/raising of seedlings	0	10	
	Land preparation for seedling transplanting	0	10	
	Transplantation of rice seedlings	3	7	
	Watering	0	10	
	Harvesting/collection	3	7	
	Threshing	2	8	
	Cleaning & drying of grains/ paddy	8	2	
	Storage	8	2	
	Marketing the surplus, (if any),	2	8	
	Misc.			
	Harvesting of grams, moong, ash, beans,etc.	5	5	

*Women Headed Households

Table 1: Role and responsibilities of women, men, boys and girls in rural agriculture in AJK

No.	Activities	Responsibility		Occasionally Performed By
		Women	Men	
	Threshing, cleaning, drying, storage of beans, etc.	8	2	
	Selection & preservation of seed for next crop	9	1	
	Periodic cleaning and drying of grains	8	2	
	Preparation of grains for grinding	10		
VEGETABLES				
	Land preparation	8	2	
	FYM & fertilizer application	8	2	
	Seedlings bed preparation	9	1	
	Sowing and raising seedlings	9	1	
	Sowing and transplanting seedlings	9	1	
	Weeding, hoeing,	9	1	
	Staking & pruning	8	2	
	Plant protection measures/IPM	7	3	
	Picking & cleaning	10	0	
	Local marketing of surplus (if any)	8	2	
	Drying of surplus and storage/preservation	10	0	
	Processing and preservation of vegetables (pickle, chutney preparation)	8	2	
	Preparation, cleaning, & storage of vegetable seed for next crop	10	0	
FRUITS				
	Arrange/purchase & transportation of fruit plants	1	9	
	Site selection, layout& pits digging	1	9	
	Hoeing of fruit plants/orchards,	2	8	
	General cleanliness of orchards	2	8	
	Watering, if needed	4	6	
	Plant protection measures/integrated pest management	1	9	
	Wrapping of trunks with gunny bags, cartridges,	1	9	
	Picking, caring, storage	4	6	
	Local level marketing	3	5	2 (Boys)

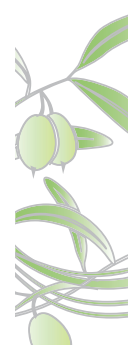


Table 1: Role and responsibilities of women, men, boys and girls in rural agriculture in AJK

No.	Activities	Responsibility		Occasionally Performed By
		Women	Men	
	Transportation/marketing to nearest market	0	10	
	Preservation & drying of surplus and injured/ browsed fruits	7	3	
	Collection of rotten, diseased fruits and damping	8	2	
POULTRY				
	Cleaning of backyard poultry cages/places	8	1	1 (Boy or Girls)
	Selection eggs, and hatching arrangements	10	0	
	Caring/rearing day-old chicks	8	0	2 (Boys or Girls)
	Feeding and watering	8	0	2 (Boys or Girls)
	Medication and vaccination	7	3	
	Caring in severe weather	7	1	2 (Boys or Girls)
	Collection and local marketing of eggs	6	2	2(Boys)
	Taking out from and getting the chicks in cages	8	0	2 (Boys or Girls)
	Marketing of surplus poultry birds	4	4	2(Boys)
LIVESTOCK				
	Mud plastering/cleaning of animal sheds	9	1	
	Disposal of dung & urine waste to the fields in scattered form or/and damping for FYM	9	1	
	Taking out and getting in the animals	7	3	
	Cleaning/bathing the animals	6	4	
	Grazing of animals	7	3	
	Preparation/cleaning of wheat straw, chopping of grass/maize Stover,	8	2	
	Preparation "Wanda" and feeding	9	1	
	Milking	7	3	
	Caring, cleaning, feeding of animal calves	8	2	
	Preparation milk by-products	10		
	Sale of milk by-products, (if needed)	5	5	
	Decision for using sale proceeds from calves	2	8	
	Utilization/decision for using sale proceeds from milk or milk by-products	6	4	

Table 1: Role and responsibilities of women, men, boys and girls in rural agriculture in AJK

No.	Activities	Responsibility		Occasionally Performed By
		Women	Men	
FISHERIES (not very common)				
	Fish pond preparation	0	10	
	Water supply arrangements	0	10	
	Fish seeding	0	10	
	Application of Feed	5	5	
	Ensuring water supply	0	10	
	Controlling fishing birds	1	5	4 (Boys or Girls)
	Local level marketing	0	8	2 (Boys)
FORESTRY				
	Establishment and maintenance of commercial forest plant nursery	0	10	
	Carrying out different nursery operations	0	10	
	Marketing of forestry plants	0	10	
	Raising forest plant seedlings through seed/ cutting at household level	8	2	
	Selling of surplus forestry plants at local level	7	3	
	Plantation of forestry plants around the house or at the marginal farm land	7	3	
	Small scale fencing & caring of forestry plants	7	3	
	Preparation, collection, transportation and storage of fuel wood from farm land	8	2	

The table below contains a rough gender profile reflecting the traditional situation regarding access to and control over the resources, control over benefits, and participation by men, women, boys and girls in decision making at various levels in a “typical” small farmer household in AJK³². It shows that women are almost exclusively in-charge of reproductive activities and household management and have a very limited role when it comes to management of resources and decision-making.

32 Enhancing service delivery for rural women, a report by FAO Consultant, UTF/PAK/096/PAK, 2008

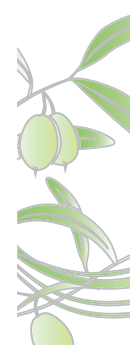


Table 2: Gender Profiling on access to and control over resources

Activities	Women	Men	Girls	Boys
Access to and control over resources				
Land ownership	X	XXX		
Access to education	X	XX	X	XX
Access to extension services, market information and microfinance	X	XX		
Control of benefits				
Farm and animal products	XX	XX		
Monetary income	X	XXX		
Participation in decision making				
Household level	X	XXX		X
Village level		XXX		X
Higher levels	X	XXX		
Religious organizations		XXX		

The output of the farms is far below their actual potential due to small land holding, traditional farming practices, practicing multiple agricultural activities on the farm, over exploitation of natural resources, limited access to extension services, limited control over resources, and restricted mobility. Normally their daily workload sums up to 12-17 hours, whereas men work between 8-10 hours. Men are mostly involved in cereal production, and they earn monetary income in administration and services, trade, crafts and construction to cover household needs. Existing poverty and low farm income, has forced many men to supplement household income from off-farm employment both within the country and abroad. Once the men leave, women become the main actors in household and farm management, adding up all the responsibilities.

The reasons for structural discrimination against women are many-fold. *“Due to unequal access of women over productive resources and prevailing gender norms within traditional households, women bear a disproportionately higher burden of poverty: Gender discrimination in access over markets, institutions and resources constrain women from overcoming poverty. At the same time, lack of autonomy within the household restrains them from increasing and consuming income from even the existing very limited market opportunities” (UNDP 2003).*



In this situation, besides suffering from inexplicable poverty, women also face the hardships of basic family needs, along with the social and cultural restrictions regarding mobility, access to education, health and extension services and more importantly decision making.

Wastage of money by men in their leisure time, earned either by themselves or with hard work of their families and children can be spent judiciously

The above situation clearly translates the overburden and workload of women both in household management and farm operations as compared to men, who avail a fair amount of free time to chat with fellow farmers, visit local markets or nearby towns, and attend socio-political meetings. The most important and detrimental aspect of this leisure time of men is that during these activities, they also waste monetary resources earned either by themselves or with hard work of their families and children. This money, if not wasted, can be spent judiciously for providing better nutrition, education and health services to the household members or for better farm management. In spite of extensive absence of male heads of the households in AJK, the pivotal role women occupy in the household economy is undermined and men still take most of the decisions both in farming operations and in household matters.

Nutrition

Rural Poverty in AJK is widespread, caused by high population density, small landholdings and degradation of natural resources. Many women suffer inexplicably from poverty and face restrictions with regard to mobility and access to services and decision-making. The average household or family size is 7. The farm income supplemented with off-farm income is extremely low to cater for the basic needs of extended families especially in terms of food quantity and quality, health care and utilities.

Availability of animal protein is extremely low, due to low productivity of farm animals, improper feeding of animals, and selling of milk and milk by-products and poultry to augment income to meet household needs. This leads to rural poverty and affects availability of quality nutrients for family members in general and women and girls in particular. As a result, women as well as children face serious health hazards and suffer



disproportionately from malnutrition and anaemia due to heavy workload and unbalanced diets. Due to the poor quality of their diets, micronutrient deficiencies, presence of acute malnutrition and hidden hunger cannot be ignored in AJK. There is high prevalence of stunting at 32 percent in AJK and similarly high occurrence of underweight and critical levels of acute malnutrition i.e. 26 percent and 18 percent respectively³³. Maternal anaemia (haemoglobin levels) is prevalent, ranging from 43% in pregnant and 41% in non pregnant mothers. Other micronutrient deficiencies are also common.

The international standard for per capita per day, fruit and vegetable consumption is 400-500 grams (range depends on the caloric value of the fruit and vegetable being eaten). The per capita per day, consumption of fruits and vegetables in AJK range between 80-100 grams. This is one third of the recommended intake³⁴.



Key Constraints

In addition to natural or traditional constraints like; small land holding, integrated type of farming system, extremely limited irrigation facilities, the following are the major gender related constraints that hinder improvement in agriculture production:

Gender based constraints to increasing agricultural production

Lack of awareness about improved farming methods and technologies: Farm families are not aware about improved farming practices including the use of high yielding varieties, application of balanced fertilizers, improved agronomic practices, measures for controlling insect pests and diseases, methods of picking, grading, treatment for quality management, packaging, storing and adding value to the available surplus produce for effective and efficient marketing. If this awareness is created through extension and

³³ National Nutrition Survey, Government of Pakistan, 2011

³⁴ Department of Agriculture, Azad Jammu and Kashmir

information services along with facilitation in introducing cash crops, local farm income can be increased.

Limited Women Extension Service: In early 1990s, at the launching of Neelum Jhelum Valley Community Development Project, it was realized for the first time that women are heavily involved in agricultural activities but were not exposed to improved agricultural technologies due to the lack of access to information through male extension service workers. In order to address this issue, a project was launched in 32 Union Councils (UCs) of district Muzaffarabad for training women extension workers. The extension workers were given a special 2-year Women Agricultural Extensionists (WAE) diploma from the Extension Services Management Academy (ESMA), Garhi Dupatta, AJK. Accordingly, the ESMA as well as project management teams jointly designed the curriculum for the WAE diploma based on the needs and activities being performed by rural women in the field of agriculture, livestock, poultry, etc. along with extension teaching methods for effective introduction and implementation of new technologies. AJK pioneered extension services for women but after the project ended, the government was able to afford only 50 percent of the staff because of limited fiscal space. Consequently, access to information and improved technologies and practices particularly to rural women folk is missing in AJK because the existing extension staff is unable to address the need for entire AJK.



Rain fed Agriculture: The irrigated area accounted for only 9 percent of the total agricultural land in AJK. This was further reduced to 5 percent after the 2005 earthquake³⁵. Although, AJK receives a fair amount of annual precipitation but non-

35 Azad Jammu & Kashmir, State Policy Framework for Empowerment of Women, 2012", Social Welfare and Women Development Department, AJK, Muzaffarabad.



availability of water storage facilities for irrigation limits the capacity of rural farmers to sow and harvest cash crops like vegetables, cutflower, etc. Rainwater cannot be effectively utilized due to the lack of (i) water conservation and storage facilities, (ii) awareness and skills about water harvesting techniques, and (iii) access to improved and efficient water usage technologies i.e. drip or sprinkler irrigation, etc.



Non-integration and lack of cooperation of service providing agencies: It is apparent that development funds in the public sector in general and departments' revenue and non-development budget in particular are always meagre. These are, to some extent, supplemented through development projects, funded by the PSDP and/or through donor assistance, which are again time bound and target oriented. Although, there are several NGOs working in the livelihoods sector in AJK, but due to lack of integration, collaboration and coordinated planning and implementation between the public sector departments and civil society organizations and NGOs, the identified real community needs remain unaddressed resulting in a low productivity cycle. The development of strong and productive inter and intra departmental coordination and development of effective linkages with the communities in general and women groups in particular can help address community needs better, within the available physical and financial resources.

Limited access to agricultural credit: Due to lack of collateral, rural women have limited access to agricultural finance. Market oriented agriculture that ensures better return on investment can help attract financial institutions to provide agriculture credit to women.

Lack of surface and sub-surface water management: Plenty of rainwater cannot be stored due to lack of (i) awareness, (ii) skills to harvest and conserve, (iii) financial

resources for building reservoirs³⁶. In view of global warming, climate change, uneven, early or delayed rainfall, it is high time to create awareness and build needed capacities of men and women farmers to adopt field as well as roof water harvesting techniques to make the most effective use of rainwater.

Terraced/hill slope farming and limited use of farm machinery: Keeping a pair of bullocks for land tillage at a small farm is costly, resource consuming, and not financially viable, therefore most farmers do not own one. As stated earlier, most of the agriculture land is sloppy and terraced, which makes access of large farm machinery difficult and financially unviable. Farmers spend a lot of time and resources to pave ways for getting large tractors to their farms and pay substantial rents to tractor owners for land ploughing and tillage. Women face further difficulties to hire tractors for tillage due to restricted mobility and cultural norms.

Solution lies in provision of small tillage tractors, equipment, and machinery that is easily movable and financially viable for small farmers. The department of agriculture has recently launched a development project to introduce this concept and machinery with involvement of financial institutions and private sector.

Gender based constraints in achieving improved production and nutrition

Women inputs in agriculture production and household income are not recognized: Women are extensively involved in agriculture but there is no tangible monetary value directly attached to these services. Income from off-farm employment of men is relatively more recognized at the household, even though it is less than what is produced at the farm by women.

Lack of decision-making: Women, predominantly in rural areas, lack the authority to decide even about the activities they are exclusively involved in. This includes decisions like which crops to grow, which inputs to use,



and utilization of money they themselves earn. As women are the main operators of agricultural operations and know many aspects that can be exploited to increase income, women should be encouraged to test new practices and take decisions.

³⁶ Dams and Irrigation Department, AJK



Limited mobility and restriction to participate in skill development:

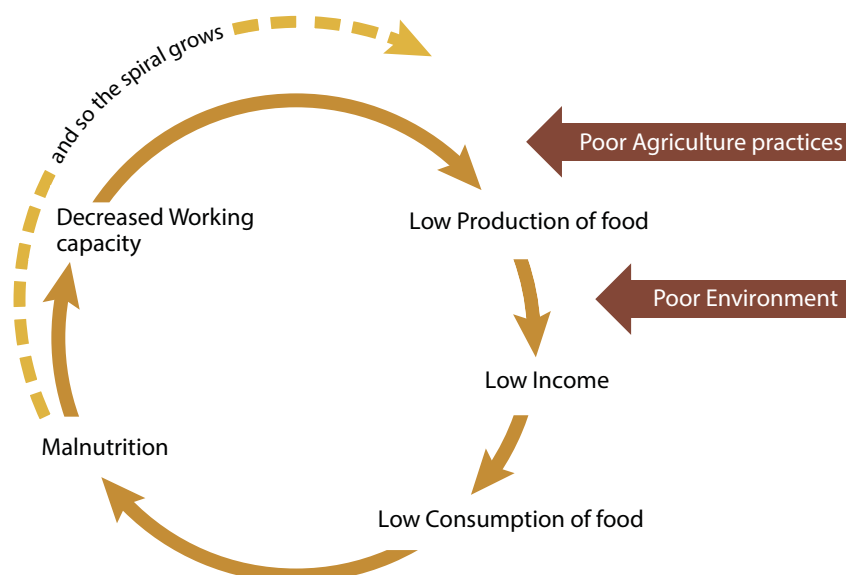
There is a significant difference between performing a certain task in a traditional manner than performing the same with better skills and new technologies. Due to limitations in decision-making and restricted mobility, women cannot independently decide to participate in skill enhancement activities even if these are organized in their villages. This affects farm productivity.

Limited access to education and health services in rural areas: Literacy rate in AJK is relatively better than in Pakistan but girls still face a high drop out in or after primary school. The reason is the cultural norms restrict them from getting secondary and higher education, accessing salaried professions and entrepreneurial activities. Poor access to health services affects women's ability to perform productive chores that eventually affects their health and income.

Lack of Skills in value addition and marketing: Value addition can result in surplus income and can give relatively better returns. Women engaged in agricultural activities should be taught appropriate skills to improve their income through value addition.

Overburden and high workload compounded with prolonged malnutrition: Women observing long working hours, restlessness, high workload, and multiple household responsibilities compounded with malnutrition in majority cases, face serious health risks. Addressing these issues can help them improve their health and become more productive.

Figure 1: Low income and Malnutrition Cycle



Recommendations

1. State level programs and projects should be sensitized to achieve gender equity and equality. The objective to work on gender equality should be adopted as policy measure by the state government.
2. While addressing gender and development issues, it is generally thought to focus on women alone. The research shows that, in all development interventions, the situation should be thoroughly and critically analysed, constraints and opportunities be carefully reviewed and accordingly needs and interests, problems and potentials of both women and men should be taken into account.
3. The fundamental objectives of any development program cannot be achieved, without taking into account the role of gender and harmonizing gender relations. In fact, human development that often precedes its material effects and manifestations is extremely difficult, if not impossible, to actualize in the absence of gender equity and justice. The overall development agenda therefore needs to be adjusted and modified with a specific focus on women development.



4. The government of AJK has recently notified and launched a “State Policy Framework for Empowerment of Women-2012” through a comprehensive state wide consultative process and with the technical guidance and input of the United Nations Entity for Gender Equality and Empowerment of Women (UN Women). The policy is in line with the AJK interim constitution Act 1974 that guarantees equal rights to both men and women and supports equitable provisions. The policy covers all aspects but needs to be implemented. This should be a priority of the government.
5. The government of AJK must ensure through Planning and Development Department that before launching any development initiative, its Gender Action Plan (GAP)



should be developed. This should i) recognize the concerns of both women and men, ii) provide equal benefit opportunities from project interventions, iii) address existing gender disparities, and iv) integrate gender both at strategic as well as implementation level.



6. A formal set up of Women Extension Services (WES) already exists within the Department of Agriculture (DOA) since 1990s. Successful professional experiences and learning of WES must be considered and analysed and needed improvements should be made accordingly. The WES must be expanded to the entire AJK, which will help enable rural women have easy and low-cost access to information, improved practices, and scientific technologies.



7. Efforts need to be made to collect indigenous knowledge on use of agriculture plants such as medicinal herbs for addressing various nutritional disorders and diseases. This knowledge base need to be properly formulated, redefined, and articulated in an easily understandable form. There is also an alarming decrease in the natively available medicinal plants and herbs. These needs to be preserved and their production promoted.
8. Agricultural plans, programmes and projects should focus on nutrition sensitive approaches to ensure dietary diversity and good nutrition at the household level especially for women, adolescent girls, and boy and girl children.
9. Kitchen gardening with latest technologies must be promoted through man and women extension services keeping in view the small landholding, importance of eating vegetables in daily diet and ensuring regular supply of vegetables at the household level.
10. Women are already making substantial contributions in agriculture and livestock activities at the household and farm level. There is a need to increase women participation in decision making at all levels, therefore a culture of mutual consultation, sharing and honouring the ideas and suggestions coming from both women and men should be promoted.



11. A reasonable quantity of health infrastructure and facilities has been established particularly with the financial assistance from development partners. This needs to be further improved and maintained especially in rural areas.
12. There is a need to explore and address root causes of drop out of girls during and after primary school as this hampers women's access to becoming professionals and entrepreneurs.



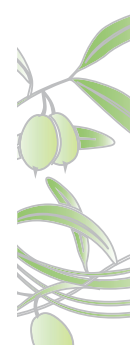
13. There is a need to take companies dealing with drip irrigation system on board in AJK and in Pakistan to devise a package of drip irrigation units, specifically designed for “kitchen gardening” as being done in many other countries. The extension workers particularly women extension workers need to introduce these small scale, low-cost, easily manageable portable drip irrigation systems.
14. Inter and intra organizational linkages and coordination must be developed and ensured in order to promote coordinated planning and implementation and reduce overlaps along with addressing gender considerations. This will help in effective and efficient utilization of physical and financial resources and will maximize farmers’ access to improved agricultural practices and technologies.
15. There are quite a number of financial institutions, particularly NGOs working in AJK offering microcredit for agriculture, livestock, poultry and other livelihood interventions. In order to utilize these services, women need to be mobilized and organized into small community groups at village level to improve their access to finance.



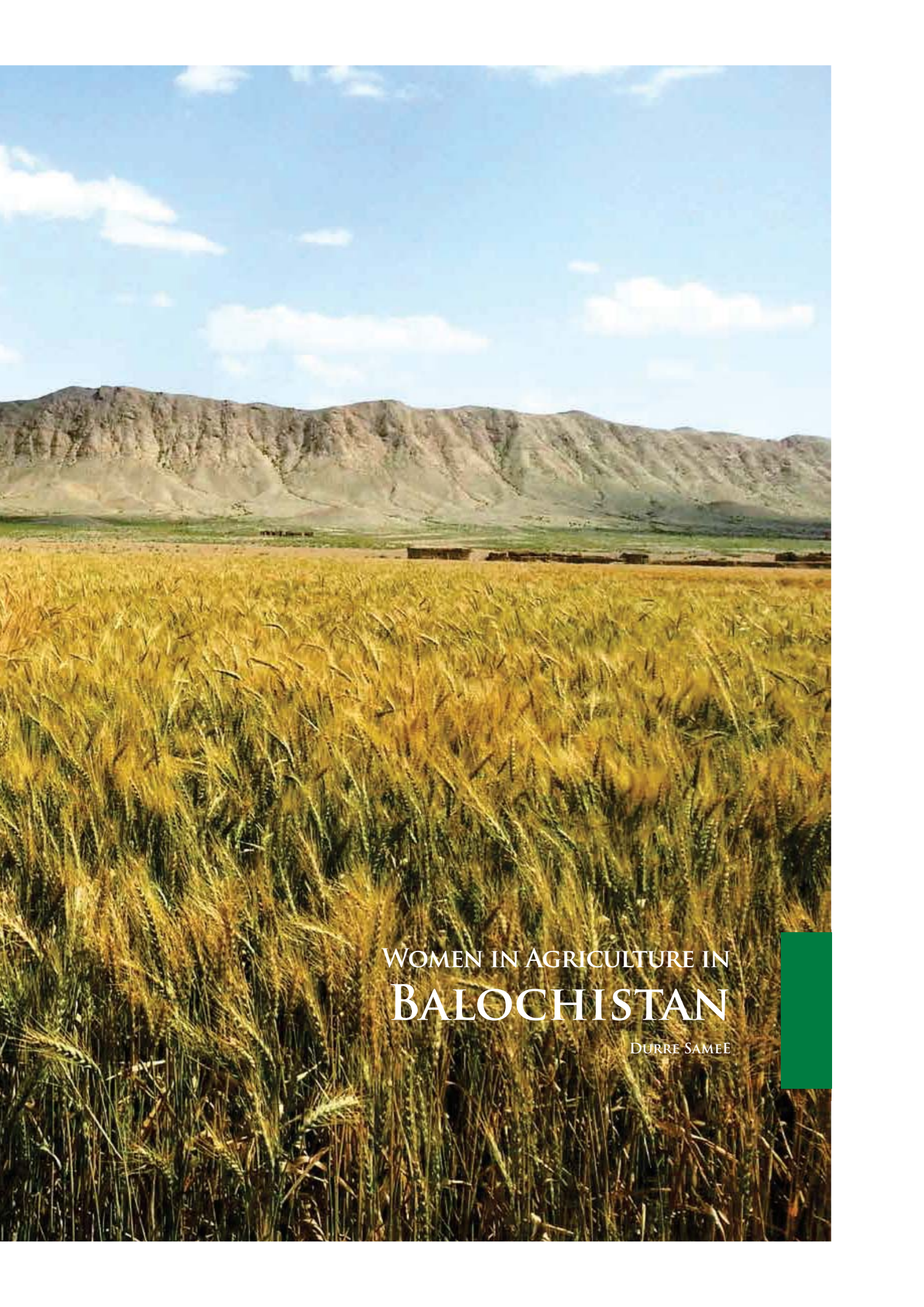
16. Training and capacity building of women farmers to enhance their knowledge and skills about on-going farm related activities and awareness about selection of short duration high return crops, adoption of cash crops and/or cut-flowers and improved technologies for increased production should be the priority.
17. Although on a limited scale, marketing of surplus farm produce including vegetables, eggs, dairy and its by-products is being practiced at local level in a traditional manner. The relevant institutions and organizations should design and implement

trainings that encourage women farmers to sell their surplus produce at better price. In the same manner, skills of rural women in agro-based cottage industry need to be improved.

18. AJK lacks sector specific gender policies formulation and implementation in general. Although Social Welfare and Women Development Department has taken lead and notified/launched “State Policy Framework for Empowerment of Women-2012”, still substantial efforts and initiatives need to be mainstreamed in sector-specific policies and programs.







WOMEN IN AGRICULTURE IN
BALUCHISTAN

DURRE SAMEE



WOMEN IN AGRICULTURE IN BALOCHISTAN

DURRE SAMEE

Background

Balochistan is the largest province of Pakistan in terms of land area, comprising 44 percent (347,190 square kilometres) of the national territory and the smallest in terms of population, constituting about 5 percent (7.4 million) of the total country's population. It is also the most underdeveloped province of the country having multi-dimensional, widespread and profound poverty. Seventy percent of the population resides in scattered, sparsely populated settlements around water resources, amid an arid and rugged terrain³⁷.

The administrative structure created by the British largely remains in place, and continues to underperform, and the state of development and participation remains much below the national averages. The highest incidence of poverty is in Balochistan where 52 percent of total households and 72 percent of the rural households live below the poverty line³⁸. Approximately 75.7 percent of the population lives in rural areas and the remaining 23.3 percent in urban areas³⁹.



37 Planning and Development Department, Government of Balochistan

38 Clustered Deprivation; District Profile of Poverty in Pakistan; SDPI (2012)

39 Clustered Deprivation; District Profile of Poverty in Pakistan; SDPI (2012)

Balochistan has the distinction of having the shortest access to warm waters for land locked Afghanistan and Central Asian republics.

Balochistan represents the mountainous western fringe of Pakistan's heartland -- the Indus valley -- where population, industry and agriculture are concentrated. Balochistan exports (coal, gas, livestock, hides, fruits and vegetables) to other parts of the country and imports staple food and manufactured goods. Its coastline along the Arabian Sea is about 770 km long. The agriculturally unproductive coastal area of Balochistan is neither effectively connected with the interior nor with the Karachi metropolis. Natural ports for large ships and navigable rivers are absent. There is hardly any hinterland for overseas trading. Balochistan also has the distinction of having the shortest access to warm waters for land locked

Afghanistan and Central Asian republics. The proximity of Balochistan to the Gulf region and its borders with two countries (Iran and Afghanistan) makes it an ideal trade corridor.

Climatic conditions are arid, ranging from dry to hyper arid, and temperatures regime vary widely from cool temperate to tropical, allowing, in the presence of the scarce irrigation water, an amazing variety of crops. Only 2 percent of Balochistan is cultivated at any time due to the scarcity of water and one third is used as rangeland. The following main geological regions are distinguished in Balochistan.

1. Central Mountain Range.
2. N-S oriented Ranges (Central Brahvi Range).
3. Kirthar Range
4. Sulaiman Range
5. Pub Range
6. Toba Kakar Khurasan Range
7. Marri-Bugti Hills
8. Chaghi hills and Ras-Koh Range
9. Mekran Mountain Ranges
10. Siahab Range
11. Koh-e-Maran



Balochistan has a low literacy rate of 46 percent (65 percent for males and 23 percent for females)⁴⁰. Gender Parity Index for primary and secondary education is 0.58 and 0.41 as compared to the national figures of 0.90 and 0.81 respectively⁴¹. 52 percent of the children under five years of age are stunted, 40 percent are under weight and 16 percent are wasted. There is high prevalence of micronutrient deficiencies in mothers and children. Maternal anaemia (low haemoglobin levels) is high, i.e. 49.7 percent in pregnant and 48.9 percent in non pregnant mothers.⁴²

⁴⁰ PIHS for 2011-12

⁴¹ Pakistan Bureau of Statistics

⁴² Pakistan National Nutrition Survey, 2011.



The foods eaten consist principally of wheat (staple food) and meat. Millet, rice, butter and milk are also commonly used. Well-to-do families eat meat and fish frequently. Two meals are frequently consumed on a daily basis.

As the society is predominantly patriarchal, decision-making is in the hands of men and these are binding on women. Society is structured on kinship bases and each group is attached to particular tradition. The political organization is built upon two principles: hereditary authority and personal bonds of allegiance in which protections is exchanged for loyalty. Many elected representatives are tribal Chiefs and Sardars.

Women's non-agriculture and non-livestock income-earning activities accounts for 15% of their annual income and is earned through embroidery, rug manufacturing, knitting, wool spinning and shearing, labour, processing edible products, shop keeping, etc.⁴³



Agriculture

Out of the total land area in Balochistan, 92 percent consists of arid grazing lands, barren Rocky Mountains, and deserts. Only 10 million hectares are reasonably productive grazing lands. The economy is dominated by agriculture including livestock and fisheries. It accounts for 54 percent of provincial GDP and employs 65 percent of the labour force. Of the total agricultural GDP, livestock contributes 40 percent, fruits; 30 percent, field crops; 17 percent, vegetable; 12 percent and fisheries; 1 percent. The livestock population of the province has been steadily increasing and over 20 million sheep and goats are reared in the province. About 72 percent of the rural population is attached to agriculture, forestry, fishing and cattle rearing⁴⁴. Wheat, barley and pulses are the main crops.

Balochistan economy is dominated by agriculture including livestock and fisheries

⁴³ United States Assistance in the Balochistan border areas (USABBA) monitoring and evaluation report, 2010

⁴⁴ Pakistan Bureau of Statistics

Lack of education, dearth of irrigation water, farmers' inability to adopt modern technologies, and poverty are the main causes behind low utilization of Balochistan's cultivable land. Major rabbi crops include wheat, barley, mustard, cumin, gram, mutter Pulse, masoor, vegetables, fodder, canola, sunflower, and safflower. Major kharif crops include rice, sorghum (jowar), millet (bajra), maize, sesamum, castor seed, lentils (moong and mash), moth, fruits, onion, potato, vegetables, melons, chillies, fodder, coriander, garlic, guar seed, tobacco, sugarcane, and cotton. Major fruits produced include almonds, apple, apricots, grapes, peach, plum, pear, pomegranate, cherry, pistachio, dates, mangos, citrus, banana, guava, loquat, papaya, chico, coconut, and fig.



Role of Women in Agriculture

Women are involved in almost every sphere of life in Balochistan but their participation is much higher in agriculture. They are solely responsible for weeding, seed cleaning, drying, and storage of crops. All these activities are cumbersome and need manual and repetitive efforts. Women are also solely responsible for cleaning the house, fetching drinking water, cooking, laundry, childcare, tailoring, etc. Men dominate activities including land preparation, threshing, marketing, and transport.

Kalat and khuzdar regions of province possess rich history and culture of using medicinal plants

Kalat and khuzdar regions of province possess rich history and culture of using medicinal plants. Women use these medicinal plants for treating the ailments mainly fevers, liver diseases, diabetes, indigestion, birth related problems, and childcare. The knowledge on use of herbs is passed on from generation to generation therefore ethno-medicinal field surveys and field studies are important for systematic documentation of these herbs. 61 species of medicinal plants belonging to 56 genera of 34 families are traditionally used as medicines by local women for treatment of different diseases⁴⁵.

⁴⁵ Rasool Bakhsh Tareen, 2010. Indigenous knowledge of folk medicine by the women of Kalar and Khuzdar, region of Balochistan, Pakistan, Pak.J.Bot.,42(3):1465-1485,2010



Cotton picking is one of the main tasks that women perform in Balochistan. Women are engaged in cotton picking for a period of two to three months. This constant and prolonged exposure to toxic chemicals pose serious health issues. During cotton picking, pesticide poisoning has increased and symptoms reported include sneezing, muscular pain, dizziness, nausea, burring skin, itching, cough, headache, blisters, and suffocation.

Women work and produce on land mostly owned by men. Men sell the harvest and enjoy a strong social and economic standing as compared to women. Other factors that limit women empowerment include lack of access to credit, gender bias in transfer of new technologies and required training, and lack of access to education.

The pervasive patriarchal ideology reinforces the economic subordination further. Gender discrimination starts from the early days of a female child. She is taught not to value herself when it comes to equality with males in the family. This applies even to small matters such as eating food of the same quality. Women also have no say in decision-making, education, marriage, health and so on and so forth. All powers are vested with the males.



Limited access to Agriculture Marketing

Women are involved in various enterprises including embroidery, preparation of processed foods (jam, jelly, tomato ketchup, etc.) but they cannot market these due to issues of mobility and market access. The role of middlemen and commission agents further reduces their income.

Key constraints

Poor Health And Malnutrition: In rural areas, women's limited access to health services creates serious health issues. Women also do not receive proper nutritive diet in their daily routine that makes them weak and prone to many diseases. This affects their own health and that of their infants and children. Moreover, girl children suffer more as the vicious cycle is repeated.



Lack of access to Education: Rural women in Balochistan are mostly illiterate because of lack of access to education facilities, conservative culture, and early marriages. This limits their capacity to adopt new agriculture technologies keeping them in the low productivity cycle.

Lack of Land Ownership and Access to Credit Facilities: Land ownership is held mostly by male members of the household and women, even if they have rights, are not given access to land titling due to cultural norms. This creates issues of accessing credit.

Lack of Segregated Economic Policy & Reforms: A major constraint to women's development in Balochistan has been their absence from the policy framework and reform implementation. This has led to unbalanced gender policies and programs in the province.

Migration: The workload of women has increased substantially in Balochistan because many men have shifted to urban areas to improve the household off farm income.

Low skill and low paid activities: Women's participation in paid employment is considered to be low because their contribution goes unrecognized and unrecorded.



Conclusion and Recommendations

Rural women have a high rate of participation in diversified activities related to crops and livestock production despite their domestic responsibilities. The Socio-economic setup of Balochistan presents an unbalanced picture and the labour force is not equitably treated on productivity bases. The following recommendations can help improve women's role in agriculture in Balochistan.



- Policy reforms should be introduced to encourage creation of small rural agro-based industries that can help diversify the use of agricultural resources and generate employment for rural women.
- Land reforms should be initiated that guarantee joint ownership of agricultural land by both men and women.
- Effective measures are needed to encourage the participation of women in accessing markets for their crop/livestock outputs.
- In order to provide a sound basis for policy makers, initiatives should be taken to accurately record and reflect gender-segregated data.
- Extension services need to be strengthened and made more equitable to improve the capacity of women farmers in agriculture production and technologies.
- Women should be trained in food processing and preservation of various fruits, vegetables and livestock products.

- The empowerment of women in agriculture should be planned with adequate resource allocation for mobilizing women, improving their capacity in technical, organizational and commercial (business/micro-enterprises) sectors and creating support systems accessible by women (credit and markets).
- Women's participation in running the state functions is minimal in Balochistan. Reforms should be made in the government that promotes induction of women workers in government and particularly in women specific departments.



- Law and access to justice is another area that needs to be addressed. Policy measures need to be instituted that eliminate negative customary practices, increase knowledge of women's existing rights to access judicial relief and redress, and ensure effective implementation and enforcement of existing rights. The idea is to remove discrimination through legal reforms and to provide legal aid, assistance and counselling.

Livestock

In Balochistan, livestock contributes 40 percent of the provincial GDP. Livestock is also the mainstay of more than 75 percent of the people living in rural Balochistan. Balochistan is under sedentary and transhumance system that indicates that income derived from small ruminants range from 80 percent of the total income in transhumance system to 40 percent in sedentary system⁴⁶. Livestock is considered as a mean of financial security in case of crop failure. The public sector infrastructure and institutional base needs to be strengthened and reorganized to meet the emerging needs of the livestock sector. So far, the emphasis has been mainly on the animal health. Equal

⁴⁶ Livestock and Dairy Development Department, Government of Balochistan



attention now needs to be devoted to production and management of livestock through introducing modern technologies focused on breed, dairy, and meat improvement.



The number of small ruminants in Balochistan is around 23.5million i.e. sheep and goats. Sheep constitute 48 percent and goats 22 percent of Pakistan's population of sheep and goats⁴⁷. Livestock rearing still continues to be a major occupation for over 70 percent rural population. Nomadic tribes solely depend on livestock for generating their income whereas sedentary people derive up to 40 percent of their income from livestock⁴⁸.

Traditionally, entire families are involved in the livestock sector, especially women and children. They are responsible for feeding, cleaning, and caring for the livestock through traditional methods. Children's involvement affects their education. Women are also involved in making dairy products including yogurt, butter, and oil. These are mostly consumed at the household level. Livestock and poultry not only provides rich food such as meat, milk, and eggs, but also produces essential raw materials such as manure, offal, hides, and wool, etc. for improving nutrition and income.

Types of Livestock: The province consists of more than 90 percent rangeland and only 52 percent is well suited for grazing. More than 46 percent of camels in the country are located in Balochistan. Twenty-two (22) percent of the country's goat population is in Balochistan province. Suleimani, Khurasani, Lehri and Morak are famous species. Sheep is mainly reared for meat, whereas its wool is used for the production of rugs and carpets. Some 46 percent of the country's sheep come from Balochistan⁴⁹. Kakari, Dumari, Kajalee, Bybrik, Balochi, Shinwari, Rekhsahni and Mangeli are the famous breeds. The hides and skins are used as mashk, heezak and zink container respectively

47 Pakistan Livestock Census 2006, Pakistan Bureau of Statistics

48 Livestock and Dairy Development Department, Government of Balochistan

49 Livestock and Dairy Development Department, Government of Balochistan

for storing water, milk and purified butter. The wool and hair are most valuable by-products as they are used for making rugs and carpets. Livestock owners generally use a portion of their animal by-products for household subsistence and social needs and sell or barter the rest to procure assets.



Role of Women in Livestock

Women make a considerable contribution to livestock production and this contribution is more visible than their work in crop production. Women are playing a crucial role in rural poultry farming. In Asia, over 90% of the rural families keep an average of 12 adult birds per family and hatch the chicks under a brood hen⁵⁰. Women apply their own methods of rearing, brooding, breeding and management based on the experience learned from family elders.



⁵⁰ Asia's women in agriculture, environment and rural production, Pakistan, FAO



Men, however, share the responsibility of taking care of sick animals. It is evident that women play a dominant role in livestock production and management activities. Poultry farming is one of the major sources of earning and nutrition in rural economies. Tasks performed by women, men and children are presented in Table 1.

Table 1: Distribution of tasks among women, men and children*

Tasks	Women	Men	Children
Milking	X		
Feeding	X		
Treating Sick Animals	X		
Herding		X	
Marketing		X	
Slaughtering		X	
Collecting Fodder	X	X	X
Poultry-care	X		
Breeding	X	X	
Weaning	X		
Cleaning Shelters	X		
Converting Manure into Fuel	X		
Processing Milk	X		
Processing Wool and Hair	X		

* Koende Wilde *et al* (1997)





Role of Women in Migratory Livestock Systems

Women of nomadic tribes play a greater role in livestock management than their rural counterparts. Cultural constraints such as *purdah* are less evident in pastoral communities where women have relatively greater freedom and mobility. Poverty-stricken families often require the contribution of women to keep the family safe from destitution. As a result, women from poorer households tend to play a greater role in livestock production. Baloch women have relatively greater cultural freedom than Pashtun women. As a consequence, Baloch women undertake a larger range of livestock-related tasks. Pashtun women are normally limited to tasks that do not require them to leave the vicinity of their houses.



In spring, milking and processing of milk are restricted to women in nomadic and transhuman societies. Incidentally, women work the longest hours in spring, when lamb-care demands considerable time and milk production is at its peak. Details on seasonal labour requirements are presented in Table 2. On the whole, women carry out more livestock production tasks than men. Women have to carry out their livestock production work in addition to their household duties, which include food preparation, child-care, water and firewood collection, milling grains, cleaning, sewing and embroidery.

Table 2: Seasonal work tasks of women (J to D in row 1 represent first word of a month)*

Tasks	J	F	M	A	M	J	J	A	S	O	N	D
Milking			X	X	X							
Feeding (General)	X	X										
Feeding (Young Animals)		X	X	X								
Treating Sick Animals	X	X	X	X	X	X	X	X				
Collection Fodder	X	X	X	X	X	X	X	X				
Poultry-care	X	X	X	X	X	X	X	X				
Breeding												
Weaning					X	X						
Cleaning Shelters	X	X	X	X	X	X	X	X				
Converting Manure into Fuel	X	X	X	X	X	X	X	X				
Processing Milk		X	X	X	X							
Processing Wool and Hair	X	X	X	X	X	X	X	X				

* Koende Wilde *et al* (1997)

Livestock Marketing

Major decisions regarding livestock production are taken by men, although women exercise control in matters relating to smaller animals and birds, especially poultry. Rural poultry of the scavenging type, which requires little input, is still in vogue in rural areas and with nomads and transhumant. With the sale returns from poultry and eggs, women meet their expenses for personal requirements like embroidery, glasswork, ornamental dressmaking and cosmetics. They purchase these items from vendors who visit them frequently on foot or on bicycle. Poultry production is especially important since women are thought to have almost complete control over income from poultry. Improved poultry production over the last few years has been identified as a significant source of income generation for women.

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In the past, more emphasis has been placed on enhancing the productivity of livestock while ignoring the marketing aspects. Any lopsided production augmentation strategy could not be effective unless the marketing aspects are adequately addressed. In Balochistan, livestock is generally marketed either at the village level by personal contact between buyer and seller or at livestock markets organized by local traders. These livestock markets are organized at different levels i.e. sub-tehsil, tehsil and district on daily, weekly, fortnightly, monthly and sometimes yearly bases. These markets are traditional therefore both buyers and sellers are mostly well informed about the market dates. There are no public markets in Balochistan. In general, both small and large ruminants are traded in the same markets. In some places, buffalo, cattle, sheep and goats are traded in separate markets.



Recommendations

Only 5 percent of total area of Balochistan is cultivated. The remaining is rangeland that provides more than 90 percent of feed requirements of livestock. The climate of the province, being arid, is ideally suited for sheep and goats. The migratory livestock constitutes about 90 percent of the livestock population, moving from uplands to lowlands in winter and going back in summers. The animal mortality rate in the province is about 45 percent that accounts for a foregone income of Rs. 339.5 billion⁵¹. The major constraints in increasing small ruminants' productivity are the harsh climate with low and erratic rainfall, cold winters and hot summers. Other constraints include poor flock management, animal diseases, weak infrastructure, biased land tenure system and weak rangeland management.

Livestock is the single most important sector that can help reduce poverty in the province. Despite women having multifarious domestic responsibilities, women perform 80 percent of the livestock chores and their share in income is only 5 percent⁵². Due

⁵¹ Balochistan Comprehensive Development Strategy (Draft approved by the Cabinet) 2013-2020

⁵² Butt, T.M., Y.Z. Hassan, K. Mehmood and S. Muhammad. 2010. Role of rural women in agriculture development and their constraints. J.Agric.&





to the poor socio-economic conditions, illiteracy, and heavy workload women's general health is affected. There is a need to empower women socially, economically, and politically and to acknowledge their role at the national and provincial level in all areas including livestock sector. These steps will enable establishment of a strong livestock industry in Balochistan.



- Rural women should be facilitated in establishing livestock enterprises.
- The contribution of women to animal production and husbandry must be acknowledged and substantiated.
- There is a dire need to conduct a study on the household organization of agrarian societies with a focus on women's role in livestock.
- Women may have more knowledge and interest in the subject of veterinary science and animal husbandry than men and must be provided relevant extension services.
- Women's access to education needs to be improved.
- Capacity of rural women to conserve natural resources needs to be strengthened.
- Women's access to financial services needs to be improved.
- Meat and livestock by-products processing should be promoted.
- Propagation of Balochistan Nari Master, the first beef breed in Pakistan, should be promoted widely in country and abroad.
- Export of processed organic and halal meat should be explored in global markets.
- Following should be focused for developing the livestock sector in Balochistan:

- Export of organic and Halal meat.
- Introduction of meat packaging for export.
- Processing of skin and hides.
- Establishment of sausage industry.
- Strengthening the wool industry.
- Establishment of milk pasteurization plants.
- Propagation of beef breed Nari Master.
- Improving access to finance for local farmers.

Fisheries

Fisheries sector is an important natural resource for food security, growth and economic development. It is also a critical asset that can help reduce poverty of coastal communities. Balochistan with its huge expanse of over 750 km of coastline, having about



eight large landing sites and 30 smaller sites, is endowed with enormous opportunities in the marine fisheries which if exploited can facilitate great benefits for the fishermen communities.



Overall marine catch has varied from 125,000 tons to 143,000 tons in last ten years. This is approximately one third of the country's total marine catch.⁵³ The catch from Balochistan is much lower than Sindh despite its longer coastline primarily on account of its much narrower continental shelf (15 to 50 km). Over 70 percent of employment in the coastal areas is from this sector, with an estimated 52,000 fishermen associated with fishing in the province⁵⁴. The catch is estimated to be worth Rs.12 billion⁵⁵.

Development of this sector requires upgrading of fishing boats, development of harbours, jetties, link roads as well as water and electricity supply schemes. Likewise, improvement in postharvest fish catch handling practices on board, at landing sites and in fish processing plants will help conserve huge exportable surplus. The provision of market facilitation and capacity building can also play an important role. The coastline is rich in aquatic life with numerous species such as tuna, mackerel, sardines, herrings, catfish, corks, shrimps, squid and crab. Due to the issues of quality, this only accounts for 0.3 percent of global fisheries export.

The coast of province has got a significant quantity of the best fish species such as Salmon, Shark, Stake, Ray, prawn, lobster and many others

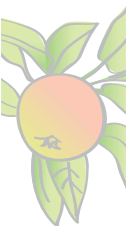
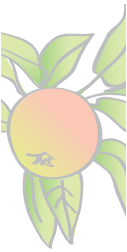
Fishing is considered to be the mainstay of the economy for coastal community. Due to water scarcity, agriculture activities are at a limited scale. The fish produced in Gawadar district is sold to the packing factories in Gawadar, Pasni and Karachi that is later exported to other countries. The coast of province has got a significant quantity of the best fish species such as Salmon, Shark, Stake,

53 Vision of Fisheries Sector Balochistan 2013-2020; fisheries Department; Government of Balochistan

54 Balochistan; Development Issues & Prospects; Part II-Fisheries (2012)

55 Balochistan; Development Issues & Prospects; Part II-Fisheries (2012)





Ray, prawn, lobster and many others, both in the shallow and deep waters. The fishermen avoid from fishing at the time of southwest monsoon, from May to September, as the sea becomes rough with high tides. Another huge portion of population works in ancillary businesses like boat marking, curing yards, salt making and ice factories. Their earning is usually related to the main fishing activities. Similarly, the fish market value is dependent upon the quality of products and services supported by ancillary business.

Role of Women in Fisheries

Standard method for preserving fish in the coastal areas has been salting and drying and are performed by coastal women. With the introduction of ice factories, these practices have become obsolete. Many women are now employed in shrimp processing plants for sorting and peeling. Women are also involved in fishing net repair. Women in coastal areas also make ornamental jewellery, decorations, key chains etc. out of seashells.

Recommendations

- Fisheries in Balochistan has the potential of increasing the fish catch by reducing the post-catch losses. Adopting best practices and value addition of fish as required in the international market can potentially increase the fish exports from Balochistan from 0.3% of total global exports to 5%. The losses incurred during catching, weighing, preservation and transportation can be avoided by constructing fish harbours, jetties along the coast line, and infrastructure including provision of fresh water and electricity, roads and fish markets, canning industries, etc. Improved preservation and value addition can increase foreign exchange earnings, which will help improve economic growth and reduce poverty.



- Existing fishing practices are hazardous to the coastal and marine ecosystem. It is important to increase awareness about conservation among local fishing communities.

- The government must define a standard for fishing boats. Only those boats should be registered and allowed to fish that fulfil the defined criteria.
- Major environmental threats to marine and coastal areas are pollution and absence of solid waste management facilities, which need to be addressed.
- Government needs legislation to protect the coastal zone and endangered species.
- Fishermen need to be trained in modern fishing technologies, regarding seasonal fishing, quality control (post harvesting,) marketing and cyclone/storms safety measures. Their skill in engine and net repair also need to be improved.
- No stock assessment has been conducted for the last three decades. This must be carried out immediately on international standards.

Forestry

Forests are important from an ecological point of view. They help maintain a balance in the environment by reducing pollution, protecting soil erosion by wind or water and intercepting rain fall, particularly on sloping ground. By preventing soil erosion, the trees on the slopes of hills also regulate the supply of water to the reservoirs. Decomposition of leaves helps in humus formation, which maintains soil fertility.

From a commercial and industrial point of view forests provide raw materials to various industries e.g. timber, pharmaceutical, paper. They also have recreational value and promote tourism.





Due to scarcity of other trees along the Balochistan coast, mangroves are chopped for fuel wood and fodder

Forests in Balochistan: The total area under forest in Balochistan is 112,629 hectares. This includes coniferous forest, Riverine Bela forest, scrub forest, costal forest and Rangeland forest. Mangrove is common in the Indus delta in Sindh and near Karachi. Balochistan comparatively has small mangrove patches that occur along the coast at three locations-- Mirani Hor, Kalmat Hor and Gawadar Bay. Due to scarcity of other trees along the Balochistan coast, mangroves are chopped for fuel wood and fodder. As a consequence, the mangrove patches in Balochistan may disappear over the coming decades.

Role of Women in Forestry

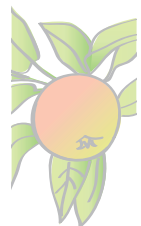
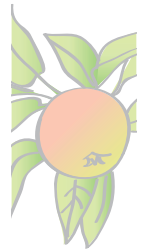
In Balochistan, women have limited role in forestry that they collect medicinal herbs for treating family ailments and firewood for household use.

Recommendation

- Forests play pivotal role in climate control, pollution, abatement, and wild life maintenance. Importance of non-timber forests is significant. The forests also act as watershed. In addition, the forests provide shelter for wild life, recreation for people, and supplies of oxygen and soil nutrients. Forests resources should be managed in such a way that enables us to obtain the things that we want from the forests on a regular bases while conserving the natural environment.



- The government in collaboration with development partners and communities including men and women groups should promote rangeland development for vegetation and restoration of rangelands. This will help in sustainable livestock management.
- Drought resistant and fast growing pasture and fodder species and trees need to be introduced to mitigate drought.





WOMEN IN AGRICULTURE IN
FEDERALLY ADMINISTERED
TRIBAL AREAS

DR PARVEZ IQBAL PARACHA

WOMEN IN AGRICULTURE IN FEDERALLY ADMINISTERED TRIBAL AREAS

DR PARVEZ IQBAL PARACHA

Background

The Federally Administered Tribal Areas (FATA) consists of seven Agencies⁵⁶ and six Frontier Regions⁵⁷ (FRs). The FRs run in a north-south strip along the eastern edge of Tribal Areas between the Agencies and the “settled areas” of Pakistan’s Khyber Pakhtunkhwa Province. FATA’s population is almost entirely Pashtun, and shares ethnicity, tribal linkages, language and heritage with Afghanistan’s largest ethnic group.

FATA is not part of Pakistan’s mainstream governance and judicial systems. Instead, FATA is governed principally by the Frontier Crimes Regulation 1901. The Government of Pakistan administers FATA with a political arrangement dating back to the British Rule, whereby Political Agents (PAs) and assistant Political Agents, or Tehsildars, interface with Malik and Lungi holders⁵⁸ of the FATA tribes using a well-established system of rewards and punishments. PAs are appointed by the central government, and have historically achieved short-term stability through control mechanisms that have created mistrust between the tribal communities and the government.

FATA people are tribal, fiercely independent, and for hundreds of years have been isolated from the rest of the world

FATA is neither monolithic nor is it a big area. Seven agencies of FATA have about 3,000 rural villages with a population of 4.2 million people⁵⁹ (extrapolated on annual growth rate from the 1998 census). Its people are tribal (60 tribes with over 400 sub-tribes), fiercely independent, and for hundreds of years have been isolated from the rest of the world. For the past several decades, Pashtun culture and social systems have been threatened by war and instability in neighbouring Afghanistan.

The net primary enrolment ratio is 31 percent⁶⁰ and the

⁵⁶ Bajaur, Mohmand, Khyber, Orakzai, Kurram, North Waziristan, and South Waziristan.

⁵⁷ FR Peshawar, FR Kohat, FR Banuu, FR Tank, FR Lakki, and FR Dera Ismail Khan.

⁵⁸ Malik is an influential member of a tribe. Lungi holders are influential members of sub-tribes or clans.

⁵⁹ <http://fata.gov.pk/index.php>

⁶⁰ Pakistan Social and Living Standard Measurement Survey (PSLM), 2011/12

literacy rate is 24 percent, as compared to the national literacy rate of 58 percent.⁶¹ Gender Parity Index for primary and secondary education is 0.60 as compared to the national level figures of 0.90 and 0.81 respectively.⁶²

Due to lack of attention and negligence of repeated governments, FATA has remained the most underdeveloped area of Pakistan. Its small cultivable land, negligible industrialization, limited exploration of natural resources, inadequate technical capacity, very few education and health facilities and limited job opportunities have forced a greater proportion of the youth to move to other parts of the country or migrate abroad to earn livelihoods.

This tribal environment creates constraints and difficulties for women farmers and there is a need to explore acceptable, affordable and plausible opportunities for progress and women development.



In the changing socio-political environment, the tribal areas have been receiving considerable attention from national and international governments, development partners and non-government organizations. In 2006, the FATA Secretariat under the administrative control of Additional Chief Secretary FATA was established to improve governance and promote development activities in FATA.

FATA has an area of 2.722 million hectares of which 0.216 million hectares (7.9 percent) is cultivable⁶³. FATA comprises 3.4 percent of the Pakistan's total land area. There are about 0.3 million farm families with average land holdings of 0.72 hectares, which is considerably lower than average land holdings of Khyber Pakhtunkhwa. About 85 percent of farmers have less than 2.02 hectares of land. Agriculture and livestock rearing has remained the main source of subsistence for over two-thirds of the population. Irrigated and non-irrigated areas constitute about 0.083 million hectares (38.42 percent) and 0.133 million hectares (61.58 percent), respectively⁶⁴.

61 Pakistan Integrated Household Survey (PIHS), 2011-12

62 Pakistan Bureau of Statistics

63 Reference WFP (2010). Food security and market assessment in crisis areas of NWFP and FATA, Pakistan

64 FATA Livelihoods Development Programme, USAID, 2009



The estimated area under forestation is 885,605 acres of which South Waziristan, north Waziristan and Kurram have the largest forest cover

The non-irrigated land is mainly used for fodder, grazing animals, agro-forestry and forest. The estimated area under forestation is 885,605 acres of which south Waziristan, north Waziristan and Kurram have the largest forest cover. These are utilized for timber, firewood, fodder, soil conservation, flood control and promotion of biodiversity.

Major Crops and Livestock

Bajaur Agency has the highest cultivable irrigated land i.e. 20,030 hectares and FR Kohat has the lowest i.e. 1,420 hectares. Bajaur, Mahmand, Khyber and Kurram agencies have relatively better topography (plain and flat) and better planned irrigation system (canals, surface water, ground water and tube wells). These are predominantly wheat-growing areas. Maize is the major crop in North Waziristan, South Waziristan, Bajaur and Khyber agencies. The average wheat yield of 1.27 tons per hectare and maize yield of 1.53 tons per hectare is much lower than those reported for provincial and national levels.



Fruits are sold at nominal profit, as there are no cold chain facilities where these can be stored

Fruits are also abundantly grown. South Waziristan and Kurram agencies are among the top two apple and peach producing areas while North and South Waziristan and Kurram agencies are famous for apricot production. Bajaur and North Waziristan are ranked among the top two plum producing areas while pomegranate, pears, grapes, ground nuts and walnuts are grown and

produced in variable amounts in the different areas of FATA. These fruits are sold at nominal profit, as there are no cold chain facilities where these can be stored. Seasonal vegetables are grown but hardly meet the local demand.

Pakistan women's
contribution in terms
of labour inputs in
agriculture is
73.8%

Women in FATA play an important role in agriculture, livestock rearing, agro-forestry, food security, food diversification and assisting the male members of their families in income generating activities besides performing normal duties as a housewife and caregiver which are considered to be routine activities. It has been estimated that in Pakistan women's contribution in terms of labour inputs in agriculture is 73.8 percent.⁶⁵

Women in FATA are mainly involved in tedious tasks such as land preparation, seed cleaning, sowing, applying manure, fertilizers, pesticides, weeding, transplanting, threshing, harvesting, cleaning and storing food grains. Women are also at the forefront of promoting horticultural activities and taking active part in kitchen gardening for growing seasonal vegetables. Both vegetables and fruits are processed and preserved in the form of jams and pickles by women for house consumption and selling.

Livestock sector in FATA has not been promoted and developed due to turbulent law and order situation and is unable to meet the growing demands of local population in FATA and Khyber Pakhtunkhwa. The livestock population is estimated at 9.183 million and is mainly used for domestic and commercial purposes⁶⁶.

Livestock and poultry rearing are dominant in arid areas where it is a source of subsistence for local farmers. Animals are reared for milk production that is both used domestically and sold in the market. These are also used as valuable assets that can be sold when required. Ineffective marketing systems and lack of dairy processing units cause substantial losses of fresh milk. Public private partnerships need to be developed to address cold chain and marketing issues in this sector.

Women are very actively and predominantly involved in livestock rearing because it is a source of livelihoods, social protection and income that can be used for supporting their families. The tasks performed by women in agriculture vary with geographical location, social and cultural norms, and local traditions. Women are also involved in embroidery, handicrafts and rugs manufacturing.

Women in FATA are involved in both rural and economic development but there is a need to further enhance their technical and financial capacity. Introduction to updated agriculture technologies with provision of infrastructure, financial services, and linkages with markets can help them improve their agriculture and livestock production.

⁶⁵ Begum R, Yasmeen G (2011) Contribution of women in agriculture: Productivity and constraints. *Sar J Agric* 27:637-643

⁶⁶ Personal Communication: Livelihood development through agriculture dairy sector development



Key Constraints

Gender disparities in time allocation for agriculture production: FATA has clearly defined socio-cultural boundaries beyond which women are not allowed to venture. Their basic needs are met through their male family members. Outside the household, they have limited educational, health, social and recreational facilities. Women are also not taken on board in major decision making in a household, in financial matters, and in matters concerning their wellbeing. Lack of ownership rights, vague inheritance practices, limited or no financial empowerment and limited access to the outside world defines the tribal women's social standing, many of whom have spent their entire lives within the four walls of their homes. Females constitute 48% of the total FATA's population⁶⁷.

Women have more control over sale of agriculture produce harvested in the kitchen gardens

Women in FATA are equally involved in agriculture but have limited role in marketing of farm produce. In contrast, they have more control over sale of agriculture produce harvested in the kitchen gardens. They also have the power to sell milk, chicken, eggs and homemade processed and preserved fruits and vegetables. The income generated is either kept by them or handed over to the head of household and is normally spent on household expenditures.



Lack of ownership rights and ignoring women in selection and utilization of agricultural inputs and sale of agricultural produce, creates mistrust and frustration among women

67 <http://fata.gov.pk>

agriculture workers. Women who work side by side with men in agriculture, livestock, agro-forestry and other development activities have the right to get their due share in agricultural income. They can use this share for healthcare, education, clothing, recreation and leisure. Absence of social and recreational activities, denial of basic rights, inappropriate dietary practices, little or no education combined with lack of health facilities puts enormous stress on women, making them vulnerable to health issues.

Gender access to and use of agriculture machinery: In FATA, the women farmers, due to socio-cultural barriers; lack of education, awareness of modern agro-farming techniques, skill development opportunities; poverty; absence of financial services and limited exposure to business markets have restricted their access to modern farm implements and research based technologies. The women farmers are unaware of the modern implements available and their use and efficacy in improving agriculture yields and output earnings.

Men, women and children food habits and choices: As mentioned earlier, FATA has remained the most under developed area of the country due to political indifference, strong tribal culture and norms, scarce economic opportunities, illiteracy, lack of industrialization and development of agriculture sector, high population density, natural disasters, armed conflicts and social turbulence. A large proportion of the population was internally displaced due to complex crisis. Small landholdings, a tenant-based agriculture system, weak irrigation system, poor marketing opportunities and depletion of natural resources, further pushed the residents into abject poverty. In a joint large family setting, farm income is augmented by small off-farm gains and money sent by family members working outside the tribal belt. Both these incomes combined are usually insufficient to meet the needs of an extended family.

Women and young girls often feed on leftovers, which are quantitatively and qualitatively nutritionally insufficient to meet their daily nutrient requirements

As in all settings, women and children are the most vulnerable groups affected by socio-economic issues. The dietary habits of the households also contribute to the compromised nutritional status of the women and children. Meals are first served to the male members of the family with good servings of meat, fruits, vegetables and other delicacies if available, followed by elderly women, and then women and girls. Women and young girls often feed on leftovers, which are quantitatively and qualitatively nutritionally insufficient to meet their daily nutrient requirements. This makes women and children more susceptible to nutritional deficiencies.

As per the Pakistan Millennium Development Goals Report 2013, the proportion of population below the calorie based poverty line in FATA is 47 percent and proportion of population below minimum level of dietary energy consumption is 32.7 percent⁶⁸. Due to limited access to antenatal care, skilled birth attendants and gynaecologists, the maternal mortality rate is 290 per 100,000 live births, infant mortality rate is 80 and under five

68 Pakistan Millennium Development Goals Report, 2013



mortality rate is 104 per 1,000 live births⁶⁹. Under-nutrition estimated by low weight for age and low weight for height is 33 percent and 13 percent, respectively⁷⁰. Malnutrition is responsible for much of the women and children sufferings with impaired behavioural, cognitive, scholastic performance and reduced physical productivity.

Gender-based limitations in agriculture

Non-recognition of women contributions: In a typical conservative tribal society, the role of women outside the four walls of their home is much restricted, task limited and does not allow free interaction with members of the opposite sex and outsiders. More often the women along with their family men work in the same landholdings performing their traditional tasks. Overall the passive role of women in household and financial matters limits their mobility and their ability to explore and adopt progressive farming techniques to enhance their income.

Lack of access to education and health services: Due to their limited role curtailed to the household and farm, women's access to education and health facilities is minimal. They are often married off at an early age within families to save the family land. No state inheritance law is in practice.

Nutrition practices preventing improvement in Women's Health: Women themselves are more or less responsible for their own low dietary intake and poor nutritional status owing to their attitude of giving better food to family members. Lack of employment, livelihood opportunities, and absence of social protection adversely affects the buying power of locals, limiting their ability to fulfil their nutritional needs.

Constraints in access to agriculture extension: Women are not allowed to access agricultural and livestock extension services. Only men contact these departments but they are not fully involved in these activities, so the benefits remain minimal.

Existing opportunities available with women farmers

Militancy and poor law and order situation in FATA has restricted not only local and foreign investment opportunities but also adversely affected trade and businesses. This has made the livelihoods dependent on agriculture. As women are the primary bearers of this responsibility, the role of women in agriculture has increased.

Farmers by and large have high hopes and expectations from the Government to provide them with loans and agricultural inputs on subsidized rates but there is lack of communication and coordination between the Government and small landholders that needs to be improved. The extension workers are also not well equipped to support small farmers and it is difficult to avail financial services.

69 Pakistan Millennium Development Goals Report, 2013

70 National Nutrition Survey, 2011, Government of Pakistan



FATA is blessed with a varied landscape, forest, vegetation, herbs and shrubs, diverse climatic conditions and a committed workforce

Gender-based opportunities: FATA is blessed with a varied landscape, forest, vegetation, herbs and shrubs, diverse climatic conditions and a committed workforce. Small land holdings and limited employment opportunities have led to a male dominated migration. This makes the women in the households left behind become more involved in production of processed food like jams and marmalades, pickles, fruits and vegetables, oil, butter and yogurt on a small scale. Due to poor networking and lack of marketing facilities, these homemade products are not being properly marketed. Potential and resources exist to enhance agriculture productivity through a variety of interventions including provision of extension services, capacity building of

female farmers in improved management, water management, use of latest technologies, etc. The public and private sector needs to establish infrastructure including cold chains to support these value chains.

In order to empower women, FATA Development Authority has established skill development centres in different agencies and FRs. Skills development trainings in handicrafts manufacturing have been imparted to 10,891 women but more need to be undertaken⁷¹.

71 FATA Development Authority, Annual Report 2011-12



Recommendations

Promote gender equality: The limited education prospects restrict women's exposure to the outside world even though they are cognizant of their rights. Women are striving for creating an enabling environment for themselves to get their due share in landholdings and earnings from agriculture. Agricultural policy needs to be harmonized and equity ensured for empowering women farmers with due rights in landholdings and earnings and in being provided the basic necessities of life including food, water, sanitation, health, education and housing as enshrined in article 38 of the constitution of Pakistan. The following steps need to be taken by the Government to encourage women's participation in agriculture and other socio-economic development activities.

Create enabling working environment for women: Necessary legislation is required to enact women friendly laws and to ensure an enabling working environment for women to participate in agricultural activities. Importance should be given to facilitate women ownership, their due share in agricultural produce, good wages and decent working hours. Food supplementation programmes for malnourished pregnant and lactating women farmers with work hour relaxations and time off when necessary may be initiated to boost their health status. This will have a positive impact on agricultural productivity.



Improve Access to finance for women: Interest free credit facilities should be provided to women farmers, small land holders and landless farmers for converting non-arable land to arable land through land levelling, installation of tube wells and dug wells, and construction of ponds and small dams. Financial support, subsidies or voucher schemes can be considered for the procurement of agricultural inputs, processing, preservation and storage of vegetables, fruit and dairy products. These initiatives will serve to increase land use, productivity, and incomes of local people.

Forging alliance with Development Partners: As mentioned earlier, the government needs to forge alliances with development partners in garnering financial and technical

support for human resource development, genetic engineering, supply of agricultural inputs and research and development in FATA.

Establishing agricultural and vocational training institutes: Establishment of agricultural and vocational training institutes is essential for organizing trainings, workshops and short and long courses. These can be in different vocations including agriculture, livestock, dairy, fisheries, beekeeping and agro-forestry, food processing and preservation, food safety, nutrition, livestock and dairy production, etc. These can be private sector led or driven in order to ensure sustainability.

Right of ownership: Women in FATA are not given land entitlements. This needs to be addressed through legal reforms and women should be given land ownership rights.

Realignment of Agricultural Policy to empower women farmer: Denying women their basic rights and empowerment in agriculture and other allied sectors gives genesis to a variety of social problems. An agriculture policy for FATA should be developed, and realigned to empower women.

Establishing and strengthening women farmers organization and networking: Women organizations and networking need to be established and strengthened respectively, for providing them an opportunity to exchange views on day to day issues related to homestead practices and marketing. The organization and networking will help in strengthening their technical capacity and solving field related agricultural problems more efficiently.

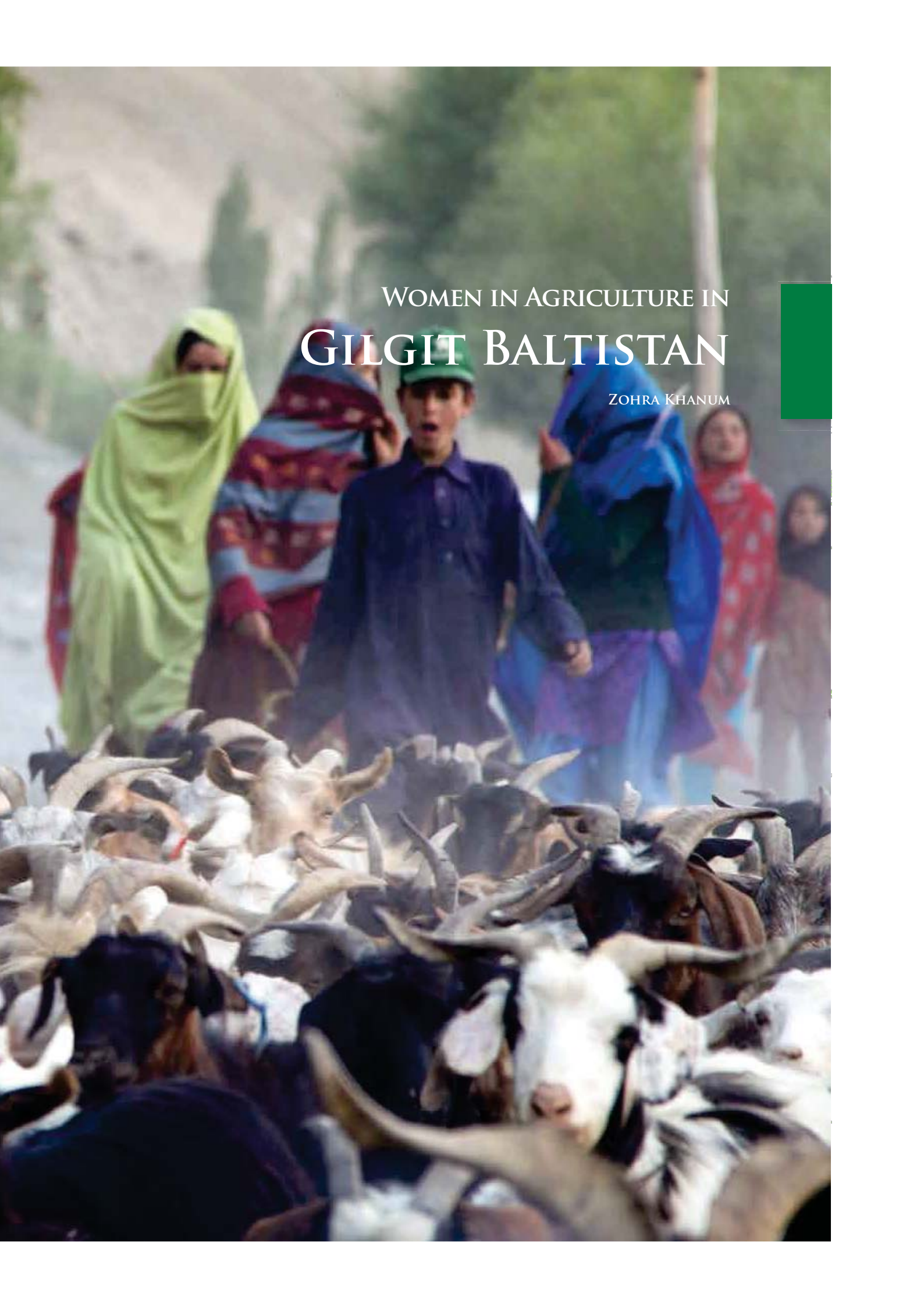
Improving health facilities for women: There is a strong relationship between women health status and agricultural productivity. Lack of health facilities for women in FATA adversely affects women work performance at home and in the field. Poor antenatal and postnatal care and lack of qualified gynaecologists and obstetricians, trained birth attendants and midwives, nurses and technicians result in high maternal, neonatal and infant mortalities and morbidities. There is an urgent need to improve the health facilities for women in FATA.

Promoting research and development: Research and development is essential for innovating new agriculture technologies. This should be promoted in FATA in collaboration with agricultural universities and development partners to increase food and livestock production, reduce food insecurity, and malnutrition.

Establishment of Girls schools and colleges: Keeping in view the current low enrolment of girls and availability of schools in FATA, there is a dire need of establishing girl schools and colleges. Making education mandatory for every child, provision of necessary books and stationary, stipends, increasing accessibility to schools and colleges, and sensitizing the local people on importance of education will enhance literacy. This will play a pivotal role in replacing outdated farming and production techniques with scientifically and technologically advanced agricultural practices. Education that is considered to be a driving force for socioeconomic development will help people in changing their dietary practices from monotonous to diversified diets, which is essential to prevent malnutrition.





A photograph of a herd of goats in the foreground, with a group of people, including women in colorful shawls and a young boy in a blue shirt and green cap, standing behind them. The background shows a hilly, mountainous landscape.

WOMEN IN AGRICULTURE IN GILGIT BALTISTAN

ZOHRA KHANUM

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ZOHRA KHANUM

Background

With an estimated population of 1 million, Gilgit Baltistan (GB) covers an area of 72,496 km². It borders Wakhan province of Afghanistan to the north, Xingjian province of China to the northeast, and Indian administered Jammu and Kashmir to the southeast. GB is extraordinarily steep and mountainous, housing the convergence of three great mountain ranges: the Himalayas, the Hindu Kush, and the Karakoram. Five out of the world's fourteen peaks exceeding 8,000 meters, including the second highest K2 are in GB. The territory also contains the largest perennial glacial deposits outside of the polar region and GB is sometimes referred to as the 'third pole' of the world⁷².

It has a predominantly agro-pastoral economy as majority of its households are engaged in agriculture. The average per household landholding is about 0.73 hectares⁷³. Women play a significant and crucial role in agriculture development and allied fields including crop production, livestock management, horticulture, post-harvest operations, agro and social forestry, etc. They are major producers of food in terms of value, volume and number of hours worked. Women manage every aspect of farm work but are not considered farmers. They are free to prepare fields, do planting, sowing, weeding, and harvesting but are not allowed to become landowners. Women harvest, process and produce but men market and manage the income.

Women represent 48 percent of the total projected population for 2012 and constitute 49 percent of the total workforce. The literacy rate for women in GB was 45 percent in 2008 against a literacy ratio of 74 percent for men⁷⁴. There are only six seats reserved for women in GB's Legislative Assembly. Women's representation in public sector Natural Resource Management (NRM) departments is negligible. There are only two permanent women officers in GB agriculture department with nine contractual support staff based in Gilgit and a few other districts. There are only three female para veterinary staff in the Dairy Development and Livestock department. The discriminatory policies and rules (especially in the forest department) prohibit highly qualified women from serving public sector organizations. The forest policy of 1997 envisages the involvement of rural stakeholders in the development and management of forests but does not include women.

⁷² World Bank, 2010 Pakistan, Gilgit-Baltistan Economic Report, Broadening the Transformation

⁷³ Agriculture statistics, Government of Gilgit Baltistan

⁷⁴ Economic Survey 2009-10, PIPS, Assessment of Socio Economic Trends in GB 2005 (AKRSP), Annual Plan 2009-10 (Planning Commission) & GB Govt.



The contributions made by the Aga Khan Development Network (AKDN) in the overall socio-economic development of women through its interventions in health, education, rural development and cultural services, are remarkable. Over a period of three decades, women in GB (except for Diamer district) have organized themselves into village-based organizations called Women's Organizations (WOs) to take up their own development initiatives. So far, 1,432 WO have been formed covering 41 percent households with a membership of over 52,357 women and collective saving of 108.44 million⁷⁵. In addition to this, there are 45 Local Support Organizations (LSOs) representing 710 WOs and 44 need based Women

Groups and Clusters⁷⁶. These forums provide women a common platform to address their common issues and make appropriate decisions. The broad-based institutional development has resulted in a complete transformation of women's relationship within the household and in the community and/or village.

GB is managed through a Governor as the head of the province and the Chief Minister as the head of the Gilgit-Baltistan Legislative Assembly (GBLA). GBLA comprises of 33 members that include 24 elected members, 3 selected technocrats and 6 selected women. In addition to the GBLA, the local government structure constitutes 7 District Councils, 101 Union Councils, and 5 municipalities. Administratively, the Gilgit-Baltistan region is divided into 7 districts, 14 sub-divisions, 23 Tehsils 106 Union Councils/ Municipalities, 570 Revenue villages and 1,409 sub-villages and hamlets⁷⁷.

GB contributes less than 1 percent to Pakistan's economy. Off-farm income contributes 60 percent and this comes mainly from public sector organizations. The incidence of poverty is about 30 percent. The per capita income of the population of the region as a whole was Rs. 29,426 in 2008. The overall unemployment rate in GB is about 2 percent⁷⁸.



⁷⁵ Aga Khan Development Network, <http://www.akdn.org/pakistan.asp>

⁷⁶ Aga Khan Development Network, <http://www.akdn.org/pakistan.asp>

⁷⁷ Government of Gilgit Baltistan, <http://www.gilgitbaltistan.gov.pk>

⁷⁸ World Bank, 2010 Pakistan, Gilgit-Baltistan Economic Report, Broadening the Transformation



The communities
in the form
of festivals
and cultural
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centuries-old
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collective actions

GB is characterized by strong social capital with community based organizations (CBOs). The communities in the form of festivals and cultural events practice centuries-old traditions of collective actions. These events play a central role in collective management and utilization of the available livelihood resource both collectively and individually. They share common resources such as forests, wildlife, pastures, land, water, and other social infrastructure like schools and hospitals. This inter-dependency encourages them to cooperate to maintain social harmony and further development. The joint family system (58percent households) prevails throughout GB. Despite development interventions, gender discrimination is deep rooted across all human development indicators. The women have limited access to basic social services including healthcare and education mainly due to absence of such social infrastructure and abject poverty.

GB experiences very frequent flash floods, debris flow, landslides and rock fall, followed by avalanches, terrain movement and earthquakes. Most of the districts are under direct influence of flash floods, river floods followed by debris and mudflow. There is an increasing trend of avalanches in single cropping zones. GB is also affected by thunderstorms associated with heavy rainfall in the monsoon season. This leads to frequent flash floods and landslides. Heavy snowfall also creates problems, affecting access to remote villages and damaging trees and houses. This is particularly the case at higher altitudes, where avalanches are common in the months of April and May when the temperature starts rising causing increased snow melting and sliding.

There are a handful of organizations working on Disaster Risk Management (DRM). Among them, the leading organizations are the Pakistan Army, Gilgit Baltistan Disaster Management Authority (GBDMA), the FOCUS Humanitarian Assistance and Pakistan Red Crescent Society. During the period of 2010-11, FAO prepared three draft reports on Hazard, Livelihoods and Vulnerability Baseline and Contingency Plans to help GBDMA in responding timely to any natural calamity.

Farm sector income (agriculture, forestry and livestock) contributes 40 percent. Within the farm sector, agriculture sector provides 48 percent to the total farm income followed by livestock (41 percent) and forestry (11 percent). This shows that livelihoods of the local population are heavily dependent on the agriculture sector. A total of 57,000 hectares are covered by the agriculture and about 95 percent of the population has some form of involvement in agriculture⁷⁹.

Agriculture extension services have improved over the past few decades due to investments by the government, FAO, and AKRSP. Major interventions include introduction of new technologies and improved crop varieties. Despite all these efforts, overall agriculture remains a subsistence activity. Lack of market access and processing and

79 Food and Agriculture, Fisheries and Animal Husbandry Department, Government of GB

storage facilities are major obstacles in promoting value added agriculture. Wheat, milk, meat and fuel wood is imported from other parts of the country even though the region can meet its own need through improving agriculture productivity.

Rural people manage available farm resources (agriculture, livestock and forestry) in an integrated manner on daily basis. As per agriculture statistics of the government, out of the total land area, only 1 percent is cultivated and another 1 percent is cultivable waste.

The agriculture farming systems include irrigation, major agricultural crops, vegetables, fruits, high pastures, livestock, forest management and fuel wood. The highest percentage of land is utilized for fodder production followed by wheat and potato. Other important crops grown in the area are Barley, Maize, and vegetables.

Due to very low annual precipitation (100-600 mm), agriculture is totally dependent on irrigation water coming from melted snow and glaciers. This situation makes the topography of the area steep, rugged and mountainous. GB has no education and research system in agriculture but survives only on rudimentary extension services.

Three major cropping zones have been classified in GB based on agricultural productivity and cropping patterns. These zones include: Single, Marginal Double and Double Cropping. In double cropping zone, two mature crops are harvested. Wheat is grown as winter crop and maize as summer crop. In double marginal cropping zone, wheat is harvested as a mature crop while maize is harvested half mature and mostly used as fodder. Farmers in marginal double cropping zone sometimes modify this pattern to wheat-buckwheat, barley-maize and barley-buckwheat. In such cases, farmers harvest two complete crops. In single cropping zone, farmers only grow wheat or barley or maize due to short growing season. The cropping zone determines the level of men and women's involvement in farming activities. The work intensity increases in double and transitional cropping zones. In single cropping zone, people keep large and small ruminants. Bulls are used for ploughing in remote areas inaccessible by tractors and thresher machines.



Roles of Women in Agriculture

Women are involved in a full range of agricultural activities, particularly in preparing manure, weeding, harvesting, herding, fruit processing, collecting fodder, growing vegetables, and raising poultry. They also carry out daily activities required to keep the household running throughout the year including processing and managing grain crops, vegetables, milk, and meat products, fetching water, rearing livestock, cleaning the house, repairing and washing clothes, and child care. Whilst men have season based specific work, women have a continuous work cycle and their workload increases in the summers due to harvest.



Men and women play diverse roles in resource management, food and livelihood security. Knowledge of these roles however, mainly is static and descriptive. There has been little work in studying the dynamic interactive nature of men and women's strategies on securing livelihoods and resource management.

In some areas, women hire labourers for farming activities in absence of the male household members

During the winter and early spring (October-March), many semi-skilled and unskilled men move from the rural areas to urban areas and elsewhere in Pakistan to find work in construction and labour industry. This is the time that their labour is least required in the village. Male off-farm employment brings greater economic opportunities that improve the overall socio-economic condition of a household. The income earned from off-farm employment is usually used to meet daily household requirements such as staple food, clothing and other household items. It also affects the division of labour, as women have to shoulder

farming responsibly in addition to full time household tasks. In some areas, women hire labourers for farming activities in absence of the male household members.

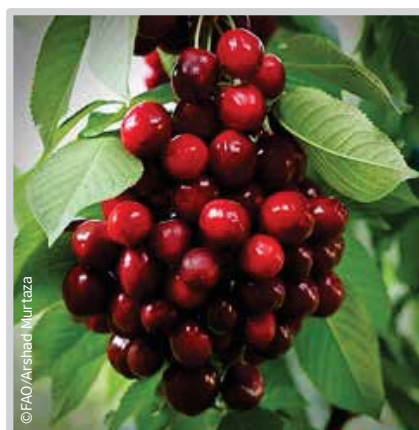
Table 1 shows that both men and women share responsibilities in different farm activities. The tasks in which women have more responsibilities are household chores, vegetable production, crop production, fruit production, livestock management and poultry farming. The activity matrix shows that women have more responsibilities (47 percent) than men (35 percent). There are activities in which both men and women help each other.

Table 1: Gender division of Labour Matrix

	Tasks	Percentage share				
		F	M	F/M	M/F	Total
1	Household chores	78	20	-	2	100
2	Irrigation	31	56	10	2	100
3	Vegetable production	52	36	6	6	100
4	Cereal Crop Production	26	25	6	43	100
5	Fruit Production	44	35	3	18	100
6	Forestry	13	38	30	18	100
7	Livestock	67	22	11	0	100
8	Poultry Farming	78	22	0	0	100
9	Wool Management	33	56	0	11	100
	Average	47	35	7	11	100

Source: Data collected by the author of this chapter from various studies undertaken by Aga Khan Rural Support Programme.

Major cereal crops grown in the area include wheat, maize, barley and buckwheat. Total area under cereal crops and fodder was 49,317 hectares with a production volume of 137,944 Metric Tons (MT). Wheat is the major crop grown across GB for household consumption followed by maize barley and buckwheat. Most of these crops are consumed (87,903 MT) at household level while very little quantity of maize, barley and buckwheat (7,598 MT) is marketed⁸⁰. No production losses are recorded in cereal crop production as such. In addition, pulses and fodder species such as alfalfa and clover is also grown. In addition to local wheat production the government also provides subsidized wheat to meet staple needs of the local population.



Over the past three decades, cropping patterns have drastically changed. In the past, farmers used to grow variety of crops to ensure year round food security for the whole family. There has been a reduction in production of barley, buckwheat, millet and pulses as improved varieties of wheat, potato, vegetables and maize have been introduced into

80 Department of Agriculture, Gilgit Baltistan



the area by the government and development partners. Improved road network allows easy access to farm machinery. Truck Lorries and maize grain splitters are available on rent.

Gender Division of Labour: Both men and women share equal responsibility (26 percent for women and 25 percent for men) for cereal crop production during different crop production cycle. Men make most of the decisions concerning cereal crops and land allocation. The following table illustrates different tasks that men and women perform during cereal crop production.

Table 2: Gender distribution of labour in Cereal Crop Production

No.	Tasks	Total			
		F	M	F/M	M/F
1	Decision making	0	0	0	6
2	Purchase of inputs	0	4	2	0
3	Land development/preparation	0	0	1	5
4	Extracting of FYM* manure from animal shed	0	6	0	0
5	FYM* transportation to the field	0	4	0	2
6	FYM spreading/stone removal from the field	6	0	0	0
7	Ploughing	0	4	0	2
8	Sowing crops	0	1	0	5
9	Weeding in vegetables and crop fields	4	0	2	0
10	Harvesting wheat and barley	0	1	0	5
11	Make bundles for wheat and barley	4	0	1	1
12	Thrashing wheat and barley	0	0	0	6
13	Collect straw and grain after thrashing	6	0	0	0
14	Harvesting maize	0	4	0	2
15	Separating cobs from maize	6	0	0	0
16	Cleaning grains	6	0	0	0
17	Grinding	2	3	0	1
18	Marketing of farm products within village	0	0	0	6
19	Marketing of farm products outside village	0	3	0	3
20	Pest Management	0	0	1	5
21	Decision on sales	0	0	1	5
22	Income possession/utilization	0	3	0	3
Total		34	33	8	57
Percentage		26	25	6	43

Source: Data collected by the author of this chapter from various studies undertaken by Aga Khan Rural Support Programme.

Land Preparation: Men always bring manure from the shed to outside and carry this to the fields using baskets, wheel borrows, donkeys and tractors. Women also carry Farm Yard Manure (FYM) in some areas in willow made baskets. Women in all districts are generally responsible for spreading the manure manually before ploughing. Some families

also use chemical fertilizer (phosphate) in addition to FYM. Community labour exchange is also practiced during heavy work season.

Ploughing: This is generally carried out by men who can operate tractor. Sometimes bullocks are used in areas that are not accessible by tractors. Women and children help in bringing tea and food to the ploughing site for men. Land levelling is the third stage after manuring and ploughing. After this ridges and channels are formed for watering. Both men and women are responsible for sowing.



Irrigation: Traditionally this has been carried out by men but recently in districts with more out migration of men for off-farm income opportunities, women have become more involved i.e. Hunza-Nagar, Gilgit and Astore. Women in Astore have long been involved in irrigating crop fields due to male out migration. In Baltistan, both women and men decide when and how much each family should water, both in broq(lower pasture) and in the valley. Boys also assist in this task.

Weeding: Except for barley, weeding is done in wheat, maize and potato crops on daily basis until the weeds are wiped out. In GB, spring is considered the food shortage season for both animal and human consumption. Therefore, women start weeding in wheat crop fields in early spring to remove the unwanted weeds and to provide fresh feed to large animals as to compensate fodder shortage. Some weeds are also used as vegetables for household consumption during early spring. Weeding is carried out by women individually or collectively with the help of their daughters and daughters-in-laws. In Baltistan, men also help women in weeding.



Harvesting: Traditionally, harvesting of wheat, potato, maize and barley is a family task where all family members contribute according to their abilities. Harvesting of wheat is carried out by men and women alike. Before thrashing, the crop is bundled upright in conical shape and left for four to five days for sun drying. After sun drying, the bundles are rearranged in a big cubical pile and a tarpaulin is wrapped around until the thrashing machine is arranged on payment and then thrashing is done collectively. During thrashing, men put wheat bundles into the thrasher while women collect grains and put them in sacks.

Men usually harvest maize with the help of male labourers. Harvested maize goes through several processes before it is cooked and served to the family. All family members including elder women, men, young girls and boys take part at different stages of maize management. Men usually harvest the crop and keep it in the open field for few days for sun drying. After this, women and children help in separating the cobs from the stems and spreading them on the roof or in any open space for several days before grain

separation from the cobs takes place. After proper drying, in most villages, men separate the grains from the cobs (split the maize) by beating the cobs with heavy wooden sticks. Women, then, separate the empty cobs from the grain and again the grain is left under sun light for further drying. Women are responsible to clean the grain before it is taken to a grinding mill or for storage. Traditionally, maize is stored in grain form for longer period considering that the flour tastes bitter in containers if kept longer than two or three months.

Almost all irrigation channels are being collectively constructed and repaired by the male members of the community. The main channel and tributaries are usually collectively repaired every year by men in spring for irrigation and drinking purposes. One person (male member) from each household participates in repair work and in case of his absence, a pre-determined fine is levied on him and the collected amount is deposited in a joint account of water user association, water management committee or village organization depending on institutional arrangement. The gender distribution of labour in irrigation is presented in Table 3 below.



Table 3: Gender distribution of labour in Irrigation

No.	Tasks	Total			
		F	M	F/M	M/F
1	Decision making regarding construction of channels	0	6	0	0
2	Construction of channel	0	6	0	0
3	Repair of channels	0	6	0	0
4	Preparing food during channel construction/repair	6	0	0	0
5	Bringing water from main source to the crop field	0	6	0	0
6	Irrigating vegetable fields	6	0	0	0
7	Irrigating crop fields (2-3 times a week)	2	1	3	0
8	Irrigating fruit gardens	1	2	2	1
Total		15	27	5	1
Percentage		31	56	10	2

Source: Data collected by the author of this chapter from various studies undertaken by Aga Khan Rural Support Programme.

The table above shows that men's participation in irrigation is higher (56 percent) than women (31 percent). Women also participate in repair and construction of channels by preparing food for their men. In Ghizer, men irrigate the crop fields while women irrigate their vegetable plots. In Astore and Hunza, women also participate in irrigating crop fields. There are also cases where due to out-migration of men for off-farm employment, women become in-charge of the household and hire labour for irrigation.





Fetching drinking water is women's responsibility and when water distribution lines freeze in winter, women face acute shortage of water

The main sources of drinking water are channels, streams and rivers. In several villages, water distribution lines have been installed by the local government or with the assistance of Aga Khan Planning and Building Services (AKPBS). Fetching drinking water is women's responsibility and when water distribution lines freeze in winter, women face acute shortage of water.

Vegetable Gardening: Major vegetable crops produced in GB include potato, tomato, peas, cabbage, Chinese cabbage, onion and capsicum. According to agriculture census 2009, the total area under vegetable crops was 10,109 hectares with a production volume of 153,017 MT. Out of this, 28,135 MT is consumed at household level while 112,987 MT is marketed and within this about 94 percent are potatoes. This shows that other vegetables are mostly grown for household consumption. The total production losses were reported at 8 percent according to agriculture census 2009.

Vegetables other than potatoes are traditionally grown on a limited scale. Usually, the area reserved for vegetable cultivation is not more than 0.5 to 2 kanals. Vegetable sowing is done by using different methods such as line sowing, sowing in small beds, intercropping with other crops, etc. The transplants of tomatoes and onions are sown in lines along ridges in the vegetable plots.

Vegetable production is an area that is considered women's domain. Women are responsible for almost all pre and post harvest activities including sale of the vegetables produced. Men and women both prepare land for vegetable production. Both FYM and fertilizer are used before and during vegetable production. Women spread FYM of goat and sheep that is considered suitable for vegetables production. Usually, men and women of a household decide on the location and area of the plot for vegetable production. Decision on variety to be grown rests with women.

Women themselves do marketing within the vicinity of the village but for markets outside the village, they let the men deal

Both men and women in all districts prepare the vegetable plots and purchase inputs from bazaar and bring irrigation water to their plot. Women are responsible for irrigation, manuring, application of fertilizer, sowing of seeds, planting of seedlings, weeding, harvesting, drying and marketing of produce. Women also store turnips, carrots, and cabbages for consumption during winter and spring seasons. Women themselves do marketing within the vicinity of the village but for markets outside the village, they let the men deal. Women generally have control over the income generated from selling vegetables. The income earned is used in the household, kept as savings or used for children's education.

Horticulture: GB has a very favourable climate for producing diverse fruits, particularly apricots. For centuries, the farmers of the region have been practicing horticulture as part of their livelihoods management strategy. Dried fruits and vegetables are an important source of household food supplies in the long winter period. After opening of Karakoram Highway (KH) in 1978, the horticulture sector became an integral source of cash income for small farming families.



In the past, most of the fruit trees were grown in cluster form in small orchards. These orchards are situated in the village, usually near the home or in the lower pastures. Fruit trees are normally planted in February and March by using seeds and seedlings. Mulberries are the first fruit to be ready and apples are the last to be harvested. Over the past 25 years, the government departments, development partners, private sector, and communities played major roles in developing this sector.

Women often have an important part in the decisions concerning livestock in terms of breeding, slaughtering and selling because of their knowledge and experience

There are about 5.749 million fruit trees (3.653 million fruit bearing and 2.096 million non-fruit bearing) with a total production volume of 169,373 tons produced over an area of 25,012 hectares⁸¹. Major fruits produced in the area include apricot, apple, grapes, pears, peaches, pomegranate, cherry, mulberry, walnut and almond. Horticulture contributes about 83 percent of the entire income generated from agriculture. Similarly, within the horticulture, fruits contribute 60 percent⁸².

⁸¹ Horticultural Crops Research Section, Department of Agriculture, Gilgit Baltistan

⁸² Horticultural Crops Research Section, Department of Agriculture, Gilgit Baltistan



Women
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small farmers

Gender division of labour: From cultivation to end use, men and women play different roles in the fruit value chain. Women involvement in apricot production is 70 percent and it provides livelihoods to 93.5 percent small farmers. During production of apple, apricot, potato and walnut, 98 percent men farmers take charge of production as compared to only 2 percent women. Though women do have substantial role in all the steps and processes of farm-gate production of these commodities but given the local social and cultural norms, men assisted by their women, lead the entire cycle of production at farm. The production cycle of apple, accounts for highest ratio of wages taken by the men seasonal labour. Interestingly, women also work as paid seasonal labour in the production cycle of apricot, potato and walnuts. The apple

production and marketing activities mainly involve men seasonal labour with least or no involvement of women. The gender distribution of labour in fruit production is presented in Table 4 below.

Table 4: Gender distribution of labour in Fruit Production

No.	Tasks	Total			
		F	M	F/M	M/F
1	Seed growing	4	0	1	1
2	Planting saplings	1	3	0	2
3	Watering sapling with hand	6	0	0	0
4	Grafting	0	6	0	0
5	Pruning	0	6	0	0
6	Fruit picking from trees	0	1	0	5
7	Fruit collection from ground	6	0	0	0
8	Fruit transportation from garden to home	0	1	1	4
9	Drying fruits	6	0	0	0
10	Fruit storage in fresh and dry form	6	0	0	0
11	Marketing and income possession	0	6	0	0
Total		29	23	2	12
Percentage		44	35	3	18

Source: Data collected by the author of this chapter from various studies undertaken by Aga Khan Rural Support Programme.

According to the analysis above, major traditional responsibilities of men (35 percent) are related to arranging plant seedlings, irrigation, pruning, grafting, climbing trees, plucking and shaking of ripen fruits, transportation to home with help from women and marketing. Women (44 percent) on the other hand, are involved in post harvest activities such as collection of fallen fruit from the ground, drying, nut cracking, oil extraction, protecting the trees against livestock.

Women use sulphur drying techniques in apricot processing. sulphur dried apricots have good market within and outside the country. Similarly, nut-cracking machines are used for de-shelling apricot kernels and walnuts. The shell is used for fuel purposes while nuts are used for household consumption, oil extraction and for sale. Farmers use rented (88 percent) farm machinery for pre and post harvesting activities for apple, apricot and walnut while they use 12 percent of their own machinery.

Livestock Rearing: Livestock in GB plays a central role in the rural economy as rural farmers use livestock for both dairy and meat production. They also use the manure, skins, and hides for income generation. Livestock contributes 35-40 percent to the overall agriculture income⁸³. The production potential of livestock is too low to meet the expanding demand. The deficiency is met through import from other parts of the country. As a part of subsistence farming, every household rears some kind of livestock.

Other important animal breeds include yaks (*Bos grunniens*), Zo (cross infertile breeds of yaks and domestic cow), and Zomo (female fertile breed). All of these are preferred animals. Zo are used as source of meat or sold to meet domestic requirements. In addition, each household maintains local breeds of cows for subsistence milk production. A household's wealth is traditionally judged primarily by the size of its landholding and the number of livestock. Livestock holding is limited by the availability of winter fodder. Therefore, only households having sufficient land, labour and fodder can afford keeping large herds. Most of these lands are communal and therefore management decisions lie with the whole community.



Gender division of labour: Women in GB are intensively involved in livestock management. They milk, feed, and clean animals, make dairy by-products, cut and collect fodder and often take part in separating, cleaning and spinning wool and making

83 High-Altitude Rangelands and their Interfaces in the Hindu Kush Himalayas, 2013, ICIMOD



thread from sheep hair. They take care of livestock during and after calving and also of sick animals. Women feed their livestock two to three times a day in autumn, winter and spring. In addition, free grazing at the village level, rotational grazing system and grazing in low and high pastures also prevail in the area. Women often have an important part in the decisions concerning livestock in terms of breeding, slaughtering and selling because of their knowledge and experience. Men are mostly involved in grazing animals in high pastures, sheering sheep, making ropes from goat hair and marketing livestock produce.

In families with more household members, the livestock responsibilities are divided among different family members. In a joint family system having more than one woman, the older woman are generally responsible for milking cows, feeding livestock and household chores. Younger women go out in the field to collect grass and fodder. The gender distribution of labour in livestock is presented in Table 5 below.

Table 5: Gender distribution of labour in Livestock

No.	Tasks	Total			
		F	M	F/M	M/F
1	Animal shed cleaning	6	0	0	0
2	Feeding with summer grass and milking livestock	6	0	0	0
3	Stall feeding	6	0	0	0
4	Make dairy by-products	4	0	2	0
5	Grazing animals in low pastures	2	0	4	0
6	Grazing animals in summer pastures	6	0	0	0
7	Slaughtering animals	0	6	0	0
8	Daily fodder cutting and collection for livestock	6	0	0	0
9	Selling of animals and income possession	0	6	0	0
Total		36	12	6	0
Percentage		67	22	11	0

Source: Data collected by the author of this chapter from various studies undertaken by Aga Khan Rural Support Programme.

In most households, women produce milk products such as butter, ghee (clarified butter), Lassi (buttermilk), yoghurt and cheese for home consumption. In most cases, women make these products by hand. Generally, Lassi is made using both traditional (goat skin and wooden cylinder shaped pot) and modern technology (electric butter churner).

Poultry: Traditional poultry farming has been practiced since centuries in GB as part of food security strategy. The government is unable to meet the growing poultry egg and chicken meat requirements in the region. The deficit is met by importing from other parts of the country. In rural GB, home-based poultry farming is still in practice for household consumption and the surplus is sold in the nearby markets.

Gender Division of Labour: Men and women both are involved in home-based poultry farming, however, most of the labour (78 percent) is done by women and so are the

decisions. Women decide which chickens should be slaughtered, how many should be bought and sold, etc. Women are also involved in traditional brooding, feeding, vaccination and egg/poultry selling at village level. It is men's responsibility to bring birds from brooding centres, construction of poultry cages/sheds, and slaughtering. The gender distribution of labour in poultry is presented in Table 6 below.

Table 6: Gender distribution of labour in Poultry Farming

No.	Tasks	Total			
		F	M	F/M	M/F
1	Decisions regarding home-based poultry	0	6	0	0
2	Buying day-old chicks	0	6	0	0
3	Construction of poultry cages/sheds	6	0	0	0
4	Poultry farming at household level	6	0	0	0
5	Feeding poultry birds	6	0	0	0
6	Slaughtering	6	0	0	0
7	Brooding at household level	6	0	0	0
8	Vaccination, disease control	6	0	0	0
9	Selling eggs and income possession	6	0	0	0
Total		42	12	0	0
Percentage		78	22	0	0

Source: Data collected by the author of this chapter from various studies undertaken by Aga Khan Rural Support Programme.

Wool Management: Traditional wool products such as *Patti* is woven by both men and women to prepare woollen clothes including men's caps, socks, men and women coats and *chogas*, produced by almost every household. This activity is more prevalent in single cropping zone. These products are produced both for household consumption and for income generation. Women are more involved in this activity in the winter season. Wool management includes sheering of sheep, cleaning, separating, dying, spinning and weaving. Gender distribution of labour in wool management is given in table 7 below.

Table 7: Gender distribution of labour in Wool Management

No.	Tasks	Total			
		F	M	F/M	M/F
1	Sheer sheep and goats	0	6	0	0
2	Separating, cleaning	6	0	0	0
3	Spinning wool	6	0	0	0
4	Make rope from goat hair	0	6	0	0
5	Weaving rug from goat thread	0	6	0	0
6	Weaving Patti	0	2	0	4
Total		12	20	0	4
Percentage		33	56	0	11

Source: Data collected by the author of this chapter from various studies undertaken by Aga Khan Rural Support Programme.



For weaving, machine carders are being introduced by AKRSP. The new technology has reduced women's workload from month-long arduous jobs to a few hours.



Forestry: Forests in GB cover an area of 281,600 hectares⁸⁴. Majority of these are found in the districts of Diamer, Baltistan, Gilgit and Ghizer. The forests provide timber, firewood, torchwood, grazing land, medicinal plants e.g. kuth, (*sassuria*, *lappa*) black cumin, and other non-timber forest products (NTFP) including pine nuts (*chilghoza*), mushrooms, honey, berries of sea buckthorn, and animal products. The forests are important watersheds for the downstream population. Many species of wild animals and plants depend on these forests for survival. Trees such as Himalayan Blue Pine (*Pinus wallichiana*), Spruce (*Picea smithiana*), Birch (*Betula utilis*), West Himalayan Fir (*Abies pindrow*), Deodar Cedar (*Cedrus deodara*), and Pencil Cedar (*Juniperus macropodia*) grow in higher regions without.

General trend is that men monopolize the mechanized work such as ploughing with tractor, thrashing and any other mechanical task

Fuel wood is the main resource harvested from the forests, followed by timber. The young branches of trees provide an important fodder source from March to May, when other fodder sources are scarce. Fuel wood is collected from low and high pastures, private land, fruit trees, and purchased from local markets. Generally, fuel wood is collected in spring and autumn and is stored for use during winters. Wood is also harvested to make agricultural and household tools and utensils while some types of bark, leaves, and berries are widely used for medicinal purposes.

Many forest related activities are undertaken by men and women including cutting

and collection of fuel wood and fodder. There are activities that only men perform such as timber cutting, collection, transportation, and sale. Both men and women do exchange labour and paid labour. In areas where natural forest is in abundance, men are responsible for most of the activities. Gender distribution of labour in forestry is given below.

Table 8: Gender distribution of labour in Forestry

No.	Tasks	Total			
		F	M	F/M	M/F
1	Fuel wood cutting and collection	0	0	4	2
2	fodder cutting and collection	1	0	0	5
3	Bringing fodder from the high pasture	0	1	3	2
4	Collecting fodder and leaves from nearby village	1	0	5	0
5	Collection of willow twigs	6	0	0	0
6	Make baskets from willow twigs	0	4	2	0
7	Irrigation of social forestry plantations	0	6	0	0
8	Forest tree cutting for commercial purposes	0	6	0	0
9	Timber collection, transportation and marketing	0	6	0	0
10	Collection of non-forest timber products			4	2
	Total	8	23	18	11
	Percentage share	13	38	30	18

Source: Data collected by the author of this chapter from various studies undertaken by Aga Khan Rural Support Programme.

The community labour exchange system is also often employed by men to cut and collect fuel wood. In some villages, Gujars are hired to collect wood from the high pastures. In the spring and summer, women usually collect dry small pieces of wood and dry thorny bushes from around the village and the lower pastures. This is often done while grazing the livestock and provides a significant portion of the fuel wood in summers. Due to their cooking responsibilities, women have better knowledge of which types of wood are better to be used as fuel wood.

Gendered access to and use of agriculture machinery: Some farm machinery is available with farmers and some is available on rent. Except for a few self-constructed conventional warehouses, rest of the required infrastructure is almost non-existent. In absence of these facilities, the farmers are sustaining huge production losses particularly in apricots, which is a perishable commodity.

General trend is that men monopolize the mechanized work such as ploughing with tractor, thrashing and any other mechanical task. Women do not have access to heavy machinery and use light machinery for post harvest processing – nutcrackers and oil extractors.



Nutrition: Majority of households suffer from food deficit for 3 to 9 months every year. Inaccessibility in winter and general remoteness of the valleys make the communities vulnerable to food shortages. Such shortages to a certain degree are compensated by seasonal out-migration of men but insufficient nutrient intakes persist and amongst other things, are negatively impacting labour productivity. This in turn, is limiting the earning potential of households and communities.

Key Constraints and Opportunities

Knowledge and Information Gap: 55 percent women in GB are illiterate. Most of the literates have education up to primary level. Due to difficult terrain and isolation, women's mobility is limited.

Limited Farm Resource Base: Integrated farming systems prevail due to small land holding. Households mostly rely on subsistence farming to ensure food security. Government due to its limited capacity is reluctant to invest in long-term development projects e.g. development of barren lands through irrigation.

Poor inputs: Farmers in general and women in particular face difficulties in accessing quality inputs. Available inputs are highly market driven and beyond the financial means of poor women farmers. This makes the households rely on traditional seed varieties, low milk producing breeds, and local poultry breeds. Both the public and private sectors have not been able to address these issues. There is a major problem in the supply of "improved high quality cereal, vegetable seeds and seed potato". Without assured supply of improved seed there is little chance of improving yields.

Poor infrastructure/technology: Major agricultural infrastructure including water channels and roads either don't exist or is in a poor condition. The processing and storage facilities are not available. Community built and managed irrigation channels are mostly prone to disasters such as landslides and frequent channel breakage.

Limited financial resources: Both public and private financial institutions are reluctant to finance small women farmers due to collateral issues. The Agricultural Development Bank of Pakistan (ADBP) has branches in the area to provide credit to farmers for crop loans but due to complicated terms and conditions and collateral requirements, poor men and women farmers are unable to access credit.

Cultural and religious restrictions: Women's access to farm resources depends upon the religious and socio-cultural systems prevailing in their area of residence. In some conservative areas such as Diamer and Astore, women are strictly prohibited from dealing with strangers. They cannot work outside without a veil. In such circumstances, most of the women tend to stay inside the house. Perhaps one of the greatest obstacles in women's participation in farm resource management is their lack of mobility. The mobility constraints make it difficult for them to move beyond their villages.



Women and Land Ownership: Despite an increasing responsibility for food and other cash crops, women do not have a secure entitlement to land and asset ownership. Men dominate this space. In absence of a male head of household, elderly women may assume this responsibility. Sometimes this happens by choice or inevitable circumstances such as the death of husband, divorce, out-migration of men, etc. The public and private organizations have never made a conscious effort to bring awareness among men and women regarding their rights ownership rights. A survey conducted by AKRSP indicates that 31 percent of the households have women holding assets and these include land, house, shops, ornaments, gold, jewellery, fruit trees, forest trees and livestock.

Women's work in not recognized: Women's unpaid labour is not recognized at household and community level. The national economic surveys have never translated women's workload into monetary terms.

Lack of decision making: According to AKRSP, in 23 percent households, women make independent decisions regarding farm expenses while in 57 percent households, women do not have any decision making power. It is also interesting to know that women with education, skills and technical training are more likely to participate in decision-making than women without these characteristics. Women working in agriculture are less likely to decide about the sale or purchase of assets.

Mobility Constraints: Women's mobility trends analysis conducted by AKRSP shows a very restricted mobility confined to within and other villages. These mobility indicators include participation in socio-cultural and religious events, marketing, health, education and employment. Mobility trends are restricted due to cultural constraints. Access to basic social services like healthcare and education also remains limited.

Marketing Constraints: Women work hard to maximize production from subsistence farming. Due to poor marketing facilities, most of the women who are involved in agriculture related enterprises (vegetables, fruits, nursery, poultry etc.) are facing great difficulties in selling their agriculture products. There are many problems associated with marketing, one of which is the lack of infrastructure. In the absence of good communication facilities, it is difficult for women to attract customers for their farm products. Income earning opportunities are also not available for women.

Nutrition Situation: The latest National Nutrition Survey 2011 revealed that malnutrition is prevalent in GB especially among children and women of childbearing age. About 26 percent children under five years of age are underweight. Around 32 percent babies are born with low birth weight, which reflects inadequate nutritional status of mothers. Based on Body Mass Index (BMI), about 9.5 percent mothers are obese and 15 percent are underweight. The NNS 2011 also reflects a widespread micronutrient deficiency of Iron, Vitamin-A, Iodine and Zinc among children up to 5 years and mothers.

In provincial and regional comparison, breastfeeding was highest (92.2 percent) in Gilgit Baltistan. The reported use of iodized salt for cooking was 94.8 percent.



Constraints in the access to agriculture extension services and social protection

safety nets: Men and women farmers do not have exposure to modern farming practices due to weak extension services. Availability and access to technology are missing. As mentioned earlier, lack of women personnel in all concerned departments further restricts women farmers access to improved and mechanized farming systems.



Recommendations

Institutional and Policy Reforms: The state government needs to introduce and implement special women quotas up to 10% for recruitment in the public and private sector natural resource management departments. Robust institutional and legal reforms are needed in all departments including agriculture that should encourage women to work, especially in the agriculture, livestock, and forestry departments. The discriminatory policies and rules that prohibit highly qualified females from serving in these organizations should immediately be amended.

Women Focused Projects: Future projects design and implementation should be gender sensitive. There is a need for specific projects designed for the people living in abject poverty based on their specific problems and needs. The poorest households should be encouraged through different incentives to become part of the institutional setup already existing at the village, UC and district level.

Women's rights: Women's participation in community land distribution decisions should be encouraged. Both men and women should have equal rights to barren lands developed by them. Awareness should be raised to consider women in decision making while selling and buying of land.

Irrigation Infrastructure Development: Rehabilitation of irrigation infrastructure through on-farm water management and new irrigation system is essential. The government institutions. In addition, adequate level of funding for repair, maintenance and operation

of irrigation systems should be provided in the annual budgets. As women are the ultimate managers of water at the farm level, they generally face water scarcity problems both for irrigation and drinking purposes therefore there is need to incorporate women in the identification and planning process of future irrigation projects to facilitate better design and implementation.

Quality Inputs: Provision of certified seeds and planting material of improved quality in addition to arrangement of necessary agricultural inputs, such as chemical fertilizers, machinery, seeds, etc. on subsidized rates to women farmers will help improve local economy.

Capacity Building: Capacity of women and men needs to be strengthened to help them sell their agriculture produce at better rates, to reduce post harvest losses, and improve on techniques processes involved in picking, packaging, grading, product development, and certification. Wholesale markets also need to be established.

Financial Assistance: Considerable work has been done at government and civil society level to enhance people's access to affordable financial services. Since women lack asset ownership, there is a need to create specialized financial institutions or introduce financial products in the existing structures that can help address this issue and can facilitate women to start their own enterprise. These financial institutions should also help develop entrepreneurship skills in women

Dairy Development: Dairy farming and processing is an area with high potential for targeting women's development. This can be done through introducing improved breeds, silage making, transportation facilities, improved fodder varieties, better farm management practices, timely and efficient availability of veterinary health services, and establishment of integrated milk collection and transportation system.

Conservation of natural resources: The government and development partners should make special efforts to involve women through encouraging them to become members of the conservation committees for conservation of natural resources and high pastures lands. Involvement of women in management of forest and wildlife resources and linking of conservation efforts to income-generating opportunities, such as trophy hunting, eco-tourism and carbon trading, is essential to conserve these scarce resources

Improving Nutrition: In order to provide the required nutrition, it will be important to promote household vegetable production. Poor and small farmers do not have the financial resource to buy these items from market and heavily rely on cereal. This fulfils their caloric requirement but not the lack of nutrition. Growing vegetables and pulses will compensate for the nutritional value of the food. Similarly pulses can compensate for meat, which is generally beyond the purchasing power of poor farmers. Women can be encouraged to grow and process fruit and vegetables to increase the nutritional content of their family's diet especially in lean seasons.





WOMEN IN AGRICULTURE IN
KHYBER PAKHTUNKHWA

DR SHAHNAZ AKHTAR

WOMEN IN AGRICULTURE IN KHYBER PAKHTUNKHWA

DR SHAHNAZ AKHTAR

Background

Khyber Pakhtunkhwa (KP) province has a population of about 22 million with 52 percent males and 48 percent females and an area of 74,521 square kilometres. With varied terrain, it connects three gigantic mountain ranges --Himalayas, Karakorum, and Hindu Kush. Though the province is located in the subtropical zone due to Himalayan, Karakorum and Hindu Kush elevation, it has a wide range of physical and climatic conditions from tropical to subtropical. Average annual rainfall ranges from 25 to 58 inches, with heavy snowfall in Chitral and Kaghan Valleys⁸⁵.

KP consists of 25 districts and can be ecologically divided in three main zones.

- The southern zone -- specializing in cereal crops.
- The central zone -- fertile lands surrounded by hilly tracks. This region has suitable environment for cash crops e.g. sugarcane, sugar-beet, tobacco, and seasonal and off-season vegetables. There is sufficient water, relatively higher income levels, and developed input and output markets.
- The northern zone --Rugged mountainous terrain with inaccessible valleys. This region is capable of producing high value crops and vegetables especially off-season vegetables i.e. mushrooms, saffron, etc.



⁸⁵ <http://www.khyberpakhtunkhwa.gov.pk/aboutus/index.php>

Agriculture employs about 50 percent of the labour force in the provinces and contributes 40 percent of its GDP. About 83 percent of the province's population is rural. To cater for the livelihood needs of this population, the province possesses 10.17 million hectares out of which 2.75 million hectares are cultivable. Out of the cultivable area, only 1.8 million hectare is cultivated whereas 1.08 million hectare is cultivable waste⁸⁶. The major chunk of cultivated land is rainfed which constitutes 49 percent of the cultivated area. This scenario has resulted in a situation where 94 percent of farms are now smaller than 12.5 acres, which is a subsistence



farm level. The land tenure system in KP can be classified into three categories, i.e. 58 percent farm area is operated by owners while 27 percent and 15 percent farm area is cultivated by owners-cum-tenants and tenants respectively. Given the diversity of its soil, KP grows over 42 crops including wheat, rice, barley, maize, sugarcane, tobacco, rape seed, mustard, groundnut, pulses, vegetables and fruits. The major crops occupy nearly 90 percent of the total cropped area and play an important role in sustaining the living of the rural population. Livestock farming is also a dominant occupation of the farming communities with more than 15 million animal heads and about 22 million poultry birds⁸⁷. However, this occupation is mostly to supplement family nutritional and cash requirement⁸⁸.

Khyber
Pakhtunkhwa
produces
78%
of Pakistan's
total tobacco
production.

Wheat, maize and rice are the staple food crops grown in the province. KP produces 5 percent of Pakistan's wheat, 30 percent of its maize, and 7 percent of its sugarcane and sugar beet. It also produces 78 percent of Pakistan's total tobacco production. Introducing innovations and new enterprises has been difficult because most of the farmers are poor and risk averse⁸⁹.

The sector is still lacking in good breeds with high level of milk and meat productivity. Poverty incidence and trends in KP reflect that 44 percent⁹⁰ of the rural population is living below the poverty line showing disappointing

results of recent economic growth, declining job opportunities and a range of natural

86 <http://siteresources.worldbank.org/PAKISTANEXTN/Resources/293051-1135159029768/Chapter-2.pdf>

87 <http://siteresources.worldbank.org/PAKISTANEXTN/Resources/293051-1135159029768/Chapter-2>

88 <http://siteresources.worldbank.org/PAKISTANEXTN/Resources/293051-1135159029768/Chapter-2>

89 <http://siteresources.worldbank.org/PAKISTANEXTN/Resources/293051-1135159029768/Chapter-2>

90 Government of Khyber Pakhtunkhwa, <http://www.khyberpakhtunkhwa.gov.pk/Departments>



resource problems. The perceived causes of these high poverty levels include a variety of factors such as low level of agricultural yields and livestock productivity due to the use of obsolete technology, drought conditions and geographic isolation. This affects women's incomes that are mainly responsible for livestock management. Literacy rate in the province is 52 percent (72 percent for males and 35 percent for females). This shows quite a contrast in terms of gender inequality as compared to the national literacy levels (70 percent for males and 59 percent for females)⁹¹. The enrolment levels of rural girls in schools have fallen to alarming levels. Among various other reasons, the prevailing security situation in the province is a contributing factor. Gender Parity Index for primary and secondary education is 0.81 and 0.59 as compared to the national level figures of 0.90 and 0.81 respectively.⁹²



Fading opportunities due to terrorism and weakening economy has led to flight of labour and capital from the province. About 30 percent of households in KP are fed by remittances from within Pakistan and another 8 percent on remittances from Gulf countries.

Limited women's access to health facilities is also a serious issue and is deteriorating day by day. Concentration of health services in urban centres has made it practically difficult for rural women to avail health services. Further to that, many militant groups are openly against providing healthcare facilities to women and children, particularly vaccination.

There is lower prevalence of maternal anaemia as compared to the other parts of the country. It ranges from 35.6 percent in pregnant and 30 percent in non-pregnant mothers. Vitamin A deficiency among women remained highest in KP i.e. 76.2 percent in contrast to the national figures of 42.5 percent. Stunting (low height for age) in children is common and is around 48 percent as indicated by the NNS 2011.

91 Pakistan Integrated Household Survey (PIHS) for 2011/12, Pakistan Social and Living Standard Measurement Survey (PSLM) for 2011/12

92 Pakistan Bureau of Statistics

Women's role in Agriculture

Women play an important, largely unpaid role, in generating family income mainly from within the boundaries of their households. Therefore their role is frequently documented in husking and preserving agriculture produce in addition to caring and rearing of domesticated livestock. Commercial agriculture is a male dominated activity when it comes to Khyber Pakhtunkhwa province. Men own and trade large animals and are also responsible for cutting, hauling and selling forest timber.

Women's access and control over productive resources is limited. Lack of skills, limited opportunities in the job market, and social and cultural restrictions limit women's access to public resources and markets.

Land fragmentation, gender segregation, non-availability of quality agriculture inputs, lack of irrigation water and transport facilities further augment these challenges. These issues keep the crop yields far below the achievable potential. Numerous market failures and natural disasters have further added to the problems of the farmers.

There is a need to strengthen existing extension infrastructure to introduce new technologies. KP has vast grazing lands and has the capacity to produce a variety of animal feed.

Due to prevalent poverty in the rural areas, women have been contributing significantly in highly diversified agricultural activities all across the province. It is observed that they work for about 12 to 15 hours on average in a day. Half of this is dedicated for household chores and the other half is spent in activities related to agricultural activities mainly livestock rearing.





Women's involvement from north to south of the province has been of diverse nature depending on the zonal ecology in which they reside. Table 1 and 2 explain diversity of women's roles in the crop and livestock activities in three major ecological zones of KP.

Table 1: Women's Perceived role in crop production in KP*

Cropping Activity	Northern Zone %	Central Zone %	Southern Zone %
Seed cleaning	60	90	90
Sowing	30	5	15
Weeding	75	10	30
Hoeing	70	2	5
Harvesting	65	10	20
Threshing	50	5	30
Drying	60	60	60
Seed Storage	70	50	50
Binding	50	10	40
Selling commodities	40	10	40
Packing	50	20	50
Sorting	50	25	55
Chemical Application	10	2	2
Cleaning Stores	35	80	80
Cleaning Fields	50	10	35
Irrigation	16	10	15
Thinning(vegetable)	80	30	40
Vegetable Picking	70	30	40
Storing food for home	70	80	50

*Based on author's observations in the field.

In sparsely populated hilly tracks of the northern part of KP, women do sowing, hoeing, transplanting, weeding, harvesting as well as threshing and winnowing. Women's role in production, rearing, and selling of livestock was found even more noticeable than in crop production. Accordingly women's involvement and contribution in enhancing livestock assets is reported quite high.

The central zone of the province is quite conservative and restricts women's mobility. As a result, their roles get restricted to agricultural post harvest activities including husking, cleaning, grading, storage, and toiling.

Livestock farming (principally cattle and goats) is important in the KP and accordingly demand from urban consumers has increased. According to official statistics, its contribution to provincial GDP is greater than that of crops. Commercial production has taken over from small-scale poultry farming, particularly in the central irrigated plains and Hazarra that have good access to markets. Buffaloes — mainly brought from the Punjab — remain pivotal to dairy production. The sale of dairy products and live animals to urban households provide income in rural areas. The extensive pastureland in the high mountains allows herders to maintain large herds of small ruminants (sheep and goats).



Livestock farming is a major source of livelihoods in the arid plains and mountains region of southern KP, with majority of farm households involved in goat and cattle rearing. Small ruminants are also important. Little investment in livestock research, high quality breeds and improvements in fodder have kept productivity low. In the absence of high quality fodder crops, grazing depends on the extensive rangelands (2.1 million hectare throughout KP — about one third of total area) although increasing pressure is leading to environmental concerns.



In KP, almost every rural household maintains 2-10 units of livestock of various sizes including poultry, sheep and goat, buffalo and cow, horses, and bulls, etc. and these are reared and taken care of by women

In KP, almost every rural household maintains 2-10 units of livestock of various sizes including poultry, sheep and goat, buffalo and cow, horses, and bulls, etc. and these are reared and taken care of by women. Women do the cleaning, feeding, milking, and collection of farmyard manure but they have no share in income generated from these animals. Table 2 shows the perceived role of women in livestock in KP.

Table 2: Women's Perceived Role in Livestock in KP*

Cropping Activity	Northern Zone %age	Central Zone %age	Southern Zone %age
Cleaning and milking of cattle	85	70	80
Feeding and watering of livestock	90	90	85
Stall feeding	90	90	90
Grazing of animals	90	40	70
Shed cleaning	90	90	90
Watering of animals	80	90	90
Bathing of animals	90	90	90
Making and storage of dung cake	95	95	95
Fodder cutting and feeding	90	65	70
Preparing ghee (Cooking Oil)	95	99	99
Marketing of animals	70	25	35
Selling products to villagers	80	70	80
Marketing of animals produce	80	80	80
Brooding and breeding	70	60	75
Raising of goat and sheep	90	50	60
Collection of farmyard manure	90	70	80
Animal health caring	60	50	60
Caring of diseased animals	90	90	90

*Based on author's observations in the field.

Poorer the family, greater would be women's part in outside activities especially agriculture

The southern part of the province is unique as women presence in the field mostly relates to their caste and family income. Poorer the family, greater would be women's part in outside activities especially agriculture.

Poorer and aged women of lower castes have to work hard helping their men in the fields or undertaking agriculture related chores at the landowner's house. The common crops of these partly barren fields are black gram, peanut, rapeseed and legumes.

An increasing number of women farmers are also engaging in agro-forestry. Tree nurseries are being encouraged through reforestation efforts, and a number of private nurseries have been established to meet the demand for saplings. Similarly, high demand for timber, particularly from match producers, is encouraging farm forestry.



Key Constraints and Opportunities

- Elders and male members in rural families have full authority over women's lives. Women have little access to financial assets or property rights. Lack of training and extension services, cultural constraints and financial dependency emerges as the main problems encountered by women farmers.
- Prevailing nutrition situation is a serious issue and women need to be made aware of how to improve their and their children's nutrition.



- A major constraint to women development in KP has been their absence from the policy framework. This has led to unbalanced gender policies and programs.
- Limited access to new technologies is a major limitation in agriculture development. Women specific areas in crop production and livestock rearing need to be focused by the extension services to increase their income.
- Provincial budget needs to be better balanced between recurrent and development expenditure in the agriculture sector. More development budget shall be allocated for research and extension, pricing policies, market development, water management, and management of forest resources and rangelands.
- Research and extension services have generally been weak. A large hierarchical set-up of agricultural extension exists in the province under the Department of Agriculture. The approach of agricultural extension has remained top-down, focusing on crop-oriented high-yielding production technologies, mainly for traditional food crops such as wheat and maize. These production technologies have rarely benefited the predominantly resource-poor small women farmers, particularly in the rain-fed districts. The need is to change this system by improving current agricultural and livestock research system. Such a solution shall promote external contact with the global scientific community. Use of the Internet and access to scientific literature is extremely limited, particularly at the field research stations and results in use of obsolescent science and technology in an age where access to modern technology is the basis for agricultural competitiveness.
- Absence of full or partial cost recovery in extension services denies opportunities for departmental revenue generation. This can contribute to financial sustainability of extension services.

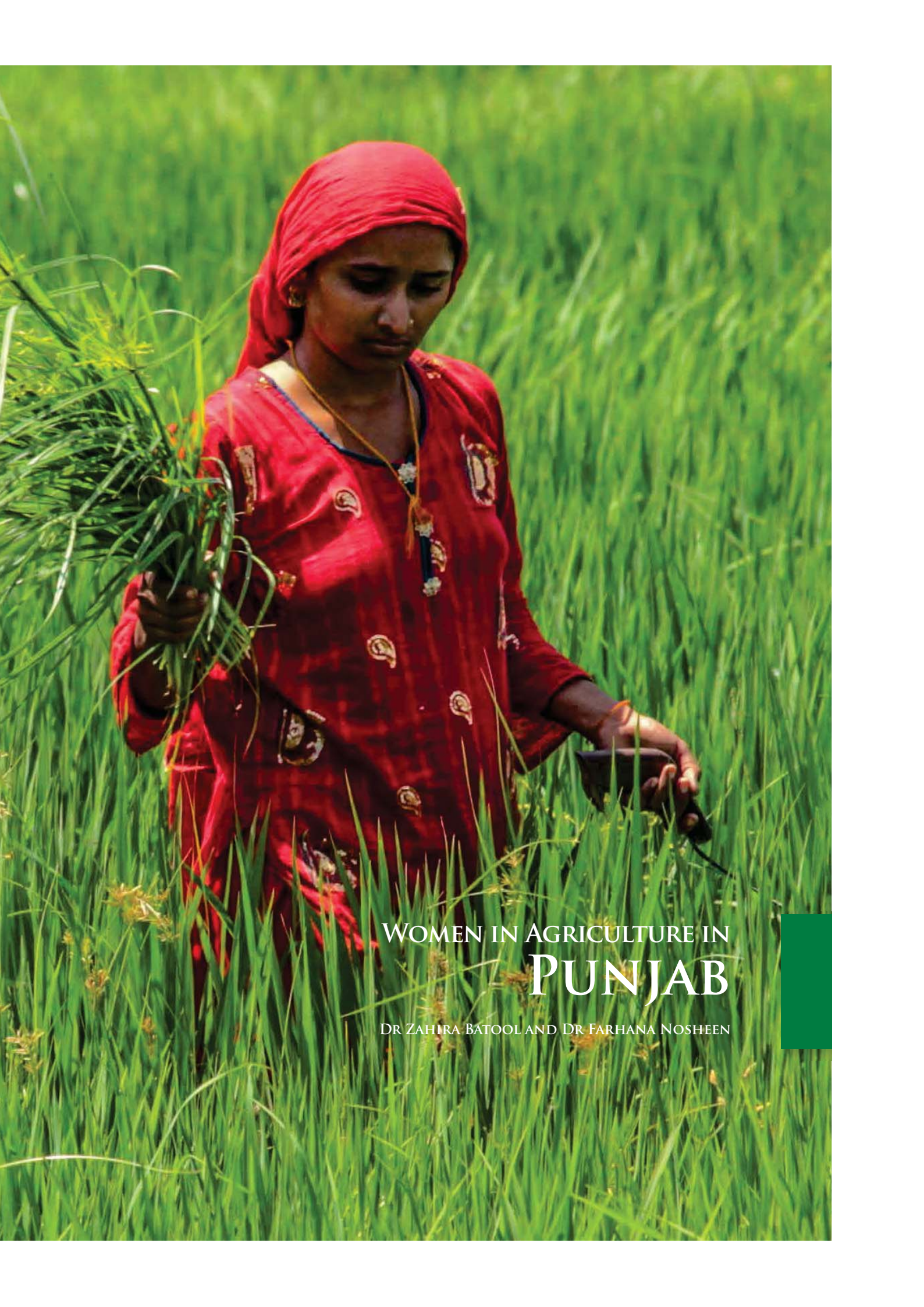


Recommendations

- All policies and programs should be made gender sensitive. This will help women better participate in overall economic and agriculture activities.
- Women's access to education, health and nutrition services should be improved.
- Smallholder farmers especially women should be supported in agriculture production through provision of agriculture inputs, technical capacity building and introduction of climate smart agriculture practices.
- Training of women in areas of their interests such as seed cleaning and preservation, post harvest management of horticultural crops and animal care are strongly recommended.
- When it comes to introducing and adopting new technologies in agriculture and livestock, accessing women becomes difficult because most of the extension workers are male. This requires introducing more lady extension workers who will be able to access rural women and help them improve their crop and livestock production.
- Kitchen gardening and poultry rearing should be emphasized at the household level in order to improve dietary diversity and reduce dependability on markets.
- School nurseries should be established in order to introduce knowledge on agriculture and nutrition and provide practical experience in food production and natural resource management.
- Women entrepreneurial skill development should be given priority especially in agriculture based microenterprises for potential women farmers.
- Women access to markets should be improved to help them increase their household income from selling their agriculture and livestock produce.
- Women farmers need to be engaged in agro-forestry.







WOMEN IN AGRICULTURE IN PUNJAB

DR ZAHIRA BATOOL AND DR FARHANA NOSHEEN



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Background

Agriculture accounts for 24 percent of Punjab's gross domestic product (GDP) while its overall share in Pakistan's GDP is 17 percent⁹³. Despite Punjab's tropical wet and dry climate, extensive irrigation makes it a rich agricultural region. Its canal-irrigation system, established by the British, is the largest in the world.



Punjab has a rich culture decorated with different social norms and values. It is known as the land of Sufis (religious saints). Punjab has a distinct cultural identity reinforced through its shared language, Punjabi, with different dialects. The variation in accents is observed across Punjab and this variation is common in dresses and other traditional values as well. The earliest signs of civilization in Punjab date back to 3800 BCE and is that of the Cholistan desert. This desert is called Rohi and is famous because of the region's premier Sufi Saint Khawaja Ghulam Fareed. The deserts intangible expressions of poetry and oral narratives, song and dance is embedded within its culture. The influences

93 Punjab Agriculture Department, www.agripunjab.gov.pk

of the material culture of the ancient people of the Hakra Valley Civilization can still be found in the pottery making traditions and in the motifs and designs that continue to be used.

Landlords in Punjab hold most of rural land, resources, and power

Landlords in Punjab hold most of rural land, resources, and power. They don't only dominate the rural areas but also influence the overall political system of the country– they represent 54 percent of the total seats in the national assembly⁹⁴.



Rural population is mostly involved in agriculture for earning livelihoods. Livestock is the single largest sector that is contributing 53% of the total agricultural value added. Rural women are mostly responsible for livestock rearing. Pakistan's milk market is estimated at some 40 billion litres annually and majority of this comes from Punjab⁹⁵. The crops grown include cotton, wheat, sugarcane, pulses, fodder and vegetables. Amongst fruit crops, Punjab has got dominant position in production of citrus and mangoes.

Punjab is divided into southern, central and northern regions and has a population of 93.7 million. The population density is 394 persons per square kilometre. Rural population is 69.7 million. The overall literacy rate is 60 percent. Primary net enrolment is 64 percent, Gender parity Index for primary and secondary education is 0.95 and 0.85 percent respectively. Maternal mortality ratio is 227 per 100,000 live births. Contraceptive prevalence rate is 33% and total fertility rate per woman is 3.9. Mean age of child bearing is 29.⁹⁶

A large number of people from North Punjab are serving in Pakistan's armed forces

Local economy in North Punjab is largely dependent on a large number of diaspora that send in remittances from United Kingdom and Europe. Large-scale migration of natives to other countries has boosted up economic stability, better educational opportunities, and better health care due to affordability. A large number of people from North Punjab are serving in Pakistan's armed forces. Agriculture here is the mainstay of people in a few districts bordering Central Punjab.

⁹⁴ National Assembly of Pakistan, 2014, <http://www.na.gov.pk/en/composition.php>

⁹⁵ White Paper on Pakistan's Dairy Sector, www.pddc.com.pk/DairyPakistan-Publication

⁹⁶ Pakistan Bureau of Statistics





People in Punjab have also started moving towards industrialization, commercialization and provision of services. Land is considered to be a significant asset in central Punjab. Women are discouraged to get their share of land, particularly when the tract is large. This is also a reason why they are not married sometimes. Exchange marriages are commonly practiced in central Punjab because in case of breakup between one couple, the marriage of the second couple will also break. Polygamy is commonly practiced and preference is given to sons for acquiring higher education and better nutrition. Girl's education is normally limited to basic religious teachings. They are not only subjected to financial discrimination but sometimes are also victims of inhuman practices such as Vanee, Karo Kari, Hadood ordinance, Qasas and marriage to the Quran. Their existence is bounded to the values and customs of the society they live in. Pardah (veil) is commonly observed in rural Punjab and family system is patriarchal.

Punjab has the largest share in the agricultural production of Pakistan. It produces 75.5 percent of wheat, 70.2 percent of rice, 68.5 percent of cotton, 67.8 percent of sugarcane, 79.8 percent of maize, and 86.5 percent of gram. In case of fruits, Punjab grows 79.6 percent of mangoes, 76.8 percent of guava, and 96.5 percent of citrus fruits⁹⁷. Kharif vegetables grown include pumpkin, cucumber, eggplant, bottle gourd, arum, beans, lufa, etc. Rabi vegetables grown include spinach, cabbage, radish, sweet potato, etc. Kharif fruits included almond, dates, jaman (*Syzygium cumini*), lychee, phalsa (*Grewia asiatica*), watermelon and muskmelon. Rabi fruits include Indian plum (*ber*), loquat (*Eriobotrya japonica*), mulberry, and citrus.

The Punjab Government announced "Punjab Women Empowerment Package 2012" on 8th March 2012, in order to address the social and economic issues faced by women. It included legislative responses to critical areas such as ensuring the right of inheritance for females and violence against women, etc. Recently, "Punjab Women Empowerment Package 2014" was launched on International Women's Day. The package is aimed to

97 Punjab Agriculture Department, www.agripunjab.gov.pk

advance the status of women in the province through safeguards, legislative action and increased representation in government institutions. The salient features include skills development of rural women on marketing including agriculture, livestock & food processing, veterinary training in livestock management, animal production and protection and poultry husbandry, free of cost vocational training to women belonging to minority communities, space for women to set up small women-only bazaars at Sunday and Ramadan bazaars, financial inclusion of women on the basis of social collateral through Rozgar Bank in order to support the development of women micro entrepreneurs in rural and urban areas.⁹⁸

Role of women in Agriculture

Like other parts of the Pakistan, rural women are among millions of landless labourers and small farmers who are fighting against rural poverty and strive hard to meet their basic needs of food, clothing and shelter. These women play a major role in agriculture production, livestock rearing and running cottage industries. They remain busy throughout the day to supply food to men in fields, help male members in crop production, water fetching, collection of fuel wood, management of livestock, and child care.



Majority of the field preparation work including hoeing (especially in vegetables) is done by women. At the time of crop harvest, when agricultural labour becomes short, female labour force actively participates in harvesting of wheat and cotton. In case of vegetables and fruits, most activities are performed by women. On fruit harvesting, women are involved in picking, cleaning, washing, and packing.

⁹⁸ [http://wdd.punjab.gov.pk/system/files/Draft Women Empowerment Initiatives](http://wdd.punjab.gov.pk/system/files/Draft%20Women%20Empowerment%20Initiatives)





Men are normally responsible for crop production, crop protection, output marketing, water management, herding, and transporting harvested crops. Rural women work with men and are involved in different farming activities including seed preparation, planting, transplanting, weeding, sowing, fodder cutting, threshing, sealing, storage, processing, and selling. Similarly all activities related to sugarcane including land preparation, weeding, peeling, baling, harvesting, etc. are performed by both men and women. The farm work of women is usually ignored by men and not counted as an economic activity. In spite of her roles and responsibilities in agriculture, women have minimal role in decision-making due to existing cultural norms.

Women involved in spraying cotton, develop various kinds of skin allergies and are unable to perform household and childcare activities during this period

Women involved in spraying cotton, develop various kinds of skin allergies and are unable to perform household and childcare activities during this period. They are not able to cook and care for their children in the cotton growing and picking period due to the time consumed in agriculture tasks assigned to them.

It is estimated that on an average a woman works 12 to 15 a day or a minimum of 25-35 hours per week on household chores. It seems that working hours of rural woman are more than that of the urban woman. Women's contribution to livestock production is also substantially higher than in crop production and farming. Men are responsible for fodder production, purchase of feed and medicines, stall-

feeding, selling animals, breeding and curing of animals whereas women are responsible for cleaning animal sheds, fodder collection, poultry, egg collection, watering animals,

cattle grazing, milking, preparing butter, oil and manure. Additionally care of sick animals, attending birth difficulties, and care and handling of expectant animals is the responsibility of women. All over the world, livestock production systems are divided into four major categories: transhumant, agro pastoralist, intensive crops and livestock and peri-urban intensive system. In Punjab, intensive crops and livestock system is in practice.

Women's contribution in livestock by-products is higher than men. They own livestock for addressing issues of income, investment, food security, and drought. Livestock is a ready source of cash for many smallholder farmers to buy inputs like seeds, pesticides, and fertilizers. Besides, income generation, livestock is very important in fulfilling various domestic needs including paying of the school fees of children, buying daily groceries, medicines, etc. It is noteworthy that agricultural crops-oriented income is highly seasonal depending upon harvest regimes. On the other hand, livestock offers a regular and timely source of income through sale of milk, meat, and other dairy products including butter, oil and cheese. Large animals can be sold at good prices to bear large family expenses like weddings and medical treatment.

Women are now becoming financially independent due to their lead role in agriculture

Men are used to dealing with markets and women with domestic work but trends in Punjab are changing with its economy strengthening and changing social norms. Women are now becoming financially independent due to their lead role in agriculture. Wage earning women bear a large burden of household chores.



In Central Punjab, women's role in maize, sugarcane, and paddy sowing and harvesting is increasing. They bear responsibilities starting from seed sowing to harvesting. Women are mainly involved in vegetable production for domestic use and its harvesting. Crop



management in central Punjab is mainly done by rural men but they involve their family women in the peak season when wheat, maize and rice cultivation and harvesting are on going. Same is the situation for livestock management and poultry.



South Punjab is among the least developed regions of Punjab. Various indicators reflect that it harbors the largest number of poor, illiterate and unemployed people in the province. The Human Development Index of Punjab Districts (2005) and Punjab Indices of Multiple Deprivations (2007-08) developed by UNDP ranked the districts of Southern Punjab at the bottom in Punjab. Feudalism has left indelible footprints on the political, social, educational and cultural life, which has augmented and complicated the illiteracy and poverty issues. Most of poor farmers in this area either have subsistence landholding or work as sharecroppers.

Resilience mechanisms adopted within communities after disasters

Development and humanitarian practitioners share a common goal: the empowerment of women, men and children so that they can enjoy their human rights and work for the protection of these rights. Development strategies and humanitarian response needs to incorporate measures that mitigate the main risks to achieving this goal.

Disaster risk reduction is defined as the concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, through reduced exposure to hazards, lessened vulnerability of people and property, good management of land and the environment, and improved preparedness for adverse

events. Therefore gender-blind disaster preparedness and response can worsen the impact of disasters on women, girls and the marginalized, diminishing their resilience to future disasters rather than promoting it. Gender mainstreaming is a concept that most find easy to agree with but few are able to implement it. The same can be said for disaster risk reduction. When these two issues are brought together in efforts to mainstream gender into disaster risk reduction, governments and practitioners have found a gap in policy and practical guidance. They know why they should do it, but not how.



In the year 2013, floods affected south and central Punjab destroying the lands, crops, livestock and most importantly humans. This region was put on high alert after water level in both River Ravi and Chenab rose, as did the death toll. Thereafter National Disaster Management Authority established 17 relief camps in which 2,800 people took shelter⁹⁹. These rehabilitation arrangements were not only limited but also not according to quality to accommodate the displaced people¹⁰⁰.

Estimates show that only 15-20 percent of the affected population came to the relief camps or stayed at the roadside, while the remaining 80-85 percent preferred to stay in the affected areas - reason being the unhygienic conditions in camps.

The flooding during the first two weeks of September 2014 affected more than 2.5 million people and killed at least 359 persons, damaging 56,500 houses and devastating a cropping area of 2.5 million acres in Punjab, Gilgit Baltistan, Pakistan Administered Kashmir. Punjab province received the hard blow where the heavy monsoon rains brought flash flood in upper region and flood plains causing damage to 427795 houses and 2.4million acres of standing crops. On the request of National Disaster Management Authority (NDMA), multi-sector initial rapid assessment was carried out in 5 of the worst affected districts in Punjab. The assessment findings indicated that access to

99 The Express Tribune, <http://tribune.com.pk/story/591342/rising-water-level-south-punjab-region-put-on-high-alert/>

100 The Express Tribune, <http://tribune.com.pk/story/586249/flash-floods-sweep-across-south-punjab/>



and from the communities had badly affected, via smaller access routes. 77 percent of the respondents reported presence of stagnant water or submergence that caused large scale damage to private houses, standing crops and other property. 28 percent respondents reported full and 11 percent reported partial damage to the river banks of Chenab and Jehlum.¹⁰¹

Drought is a slow onset phenomenon that affects various areas in the South Punjab. Drought has many definitions but the common one is the meteorological drought that is characterized by a reduction in rainfall over a region for a specified period below a specified amount, usually defined as some proportion (percentage) of the long term average for the specified time period. The main arid rangelands in the province include Cholistan, Dera Ghazi Khan and Thal. Rainfall variation during different seasons is also considerably high. Climate in lower southern part of the province is arid and hyper-arid.

Low rainfall and precipitation resulted in the lowest water levels recorded in Pakistan. In the year 2000 the rainfall was 14 percent lower than that in 1999, following on from declines of 13.2 percent and 26.2 percent in 1999 and 1998 respectively. 21 percent of Punjab province's economy was affected by the drought of 1998-2002. According to the Meteorological Department, districts of Bahawalpur, Rahim Yar Khan, Dera Ghazi Khan, Khushab, Multan, Bahawalnagar, Bhakkar, Layyah, Rajanpur and Muzafargarh are prone to drought hazard¹⁰².

The communities have developed their traditional resilience mechanisms to deal with disasters but there is a need to strengthen the formal mechanism in agriculture, livestock, irrigation and rangelands sub-sectors to counter these disasters. Lessons can be learned from other countries in order to counter such disasters in Pakistan. For example, Bangladesh organized women groups and systemized the community practice in prevention and mitigation practices. The Task Force was formed in 2010 that spread the message and scaling up of initiatives to neighbouring villages. In less than two years, the task force guided the village communities in preparing dry foods, ensuring grain banks, updating the knowledge of task force teams, arranging medical kits, etc., especially before



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101 National Disaster Management Authority (NDMA)

102 PDMA, Disaster Risk Management Plan, Punjab

the monsoon season. A training manual on Disaster Task Force was also prepared to teach other villages stakeholders. Similar sort of strategies can be adopted in Pakistan especially in south Punjab where floods seem to be a common phenomenon.

As such, women and men farmers' resilience initiatives and their role in risk reduction activities and local development can play an important role in disaster risk reduction. Women should be given opportunity to address problems and challenges of local development and resilience.

People are already adapting to climate variability and change on a daily basis and there is evidence that people act positively to enhance their resilience to livelihood related stress. Livelihoods are dynamic, complex and variable. Psychological resilience is an individual's tendency to cope with stress and adversity. This coping may result in the individual "bouncing back" to a previous state of normal functioning, or simply not showing negative effects. A third, more controversial form of resilience is sometimes referred to as 'posttraumatic growth' or 'steeling effects' where adversity leads to better functioning. Capacity development should be inculcated as the processes whereby people, organizations, and society as a whole, strengthen, create, adapt and maintain their capacity over time.



Women and men farmers need to jointly formulate resilience strategies at the village level through developing community-based adaptation plans. Preferably these should be prepared in a participatory manner. These community-based adaptation plans will provide details on: (i) long-term vision for village development, (ii) strategies to overcome gender inequalities, (iii) training and information needs, (iv) livelihoods to be developed, (v) assets to be protected, (vi) resources required for implementing the plan, (vii) village level coordination and decision-making mechanisms, and (viii) agricultural and livestock care and management strategies.



Key constraints

Women's contribution in agriculture is unrecognized, unpaid, underrated, and overlooked. The contributing factors for less visibility, voice and agricultural gains are physical (child bearing, rearing, lactation and abortions), traditional, institutional and socio-cultural in rural society of Punjab. Women farmers face difficulties in accessing microcredit, agricultural information, agricultural training and extension services that have exacerbated the risk of not achieving the full potential of agriculture in Punjab.

Female farmers are major contributors in agricultural production in Punjab but have limited access to land ownership. This limits their capacity to access agriculture finance. Distribution of time in farm and household chores is a key constraint. Due to small land holding, women and children have to do intensive labour to make the ends meet. Transfer of technology is usually done through the Agricultural Extension department. This is mainly focused on men so women always remain technology deficient.

Women in northern Punjab fetch wood for fire from distant hilly areas for cooking and for washing of clothes. They also fetch water for drinking from far off areas. Deforestation in north Punjab has led women to spend more time in firewood collection instead of doing agriculture, livestock, and household activities.

Post-harvest operations are performed by women manually, in spite of the fact that farm machinery for these tasks is available

Visibility and voice: Women play a key role in the rural economy and their participation in agriculture enhances food security. As per the agriculture department Punjab, about 93 percent women in Punjab do not own land, half of them are engaged as farm and family labour and around 75 percent of these receive no payment for their work. For gender mainstreaming, agricultural policy must ensure their right to own land and guarantee access to other productive resources such as credit, inputs, links to markets, and agricultural extension services.

Access to and use of agriculture machinery: Most of the agricultural operations like seeding, weeding, harvesting of wheat in central Punjab and rice in north Punjab as well as other post-harvest operations are performed by women manually, in spite of the fact that farm machinery for these tasks is available. They are not given access to such machinery because their ability to operate such machines is undermined.

Women in Punjab lack access to farm equipment that results in far more manual labour for them than is required and creates health issues

In north Punjab, groundnut production and development of rice nursery is customarily done by women. Transplantation of rice nursery, it's weeding, fertilization and plant protection measures are largely performed by women. As women labour cost is far less than use of farm machinery, farm mechanization has not taken place.

The situation is the same in central and southern





Punjab. Here women are involved in cultivation of sugarcane and cottonseed de-linting, it's sowing at ridges or raised beds, weeding, and fertilization. All these functions are done manually. Spray of weedicides or insecticides at large scale is done by men through use of mechanical machinery or equipment. Selection of proper pesticide, its procurement, use of farm machinery, consultation with agricultural extension department is mainly done by men and there is no message from agriculture extension department for women farmers to use farm machinery. Punjab agricultural extension department although have sufficient female agricultural extension officers in the field, but their contribution in the uplift of agricultural production and awareness of women farmers in use of modern farm machinery, implements and equipment has not been significant and effective. Many women have no access to milking machines or tractors, combine harvesters, or threshers and others complain of high costs of hiring rental machinery and tractors due rising fuel prices. The perception of women farmers is that using machinery is a masculine job. In conclusion, women in Punjab lack access to farm equipment that results in far more manual labour for them than is required and creates health issues.

Food and nutrition: Women face unequal opportunities in terms of nutrition, education, income, employment, asset ownership and poor access to prenatal, natal and postnatal care affecting their health.

Women's nutritional knowledge and their ability to cook and serve appropriate quantities of food to individual household members are important determinants of women's nutrition-related roles

Nutritional aspect and balanced diets are often difficult to understand. Women's nutritional knowledge and their ability to cook and serve appropriate quantities of food to individual household members are important determinants of women's nutrition-related roles. Food habits and nutritional requirements change as one moves through different life cycles -- adolescence,



pregnancy, lactation, menopause and ageing. All these place extra demand on a human body that has to be met through following a balanced diet that is not ensured in most of the cases. Nearly 40 percent of the province's children under age 5 are stunted (39.2 percent.) The prevalence of underweight children is 29.8 percent, while wasting prevalence is 13.7 percent. Only 52.4 percent of women in Punjab have body mass index that is normal, while 17.7 percent are underweight and 29.9 percent are overweight or obese¹⁰³.

The situations of under nutrition and malnutrition in Punjab among children and mothers as discussed above is mainly due to poor nutritional knowledge, heavy burden of responsibilities, low socio-economic status, lack of leisure time, unequal distribution of food resources, multiple pregnancies within short intervals, big family size and poor health facilities. All these factors are accountable for poor nutrition of rural women.

Women in rural Punjab remain busy in household and farm activities from dawn to dusk and do not eat well which leads to nutritional deficiencies of iron, folate and vitamins. Another reason is that men receive the largest, best and first share of the meals and women and girls survive on remains

Constraints in access to agriculture extension services and social safety nets: In the current set up, extension department is mainly responsible for communicating and transferring important and new information to farmers but their efficacy is often questioned in Pakistan especially in south Punjab where they are very few in number and also have limited extension facilities.

The total number of women working in Agriculture extension Department Punjab is 32. Out of these 32, 21 are working in north and central Punjab¹⁰⁴. The extension services are not gender inclusive and are more targeted towards men. This deprives the women farmers of getting introduced to new innovations and technologies limiting their potential to grow and increase their incomes in agriculture and livestock.



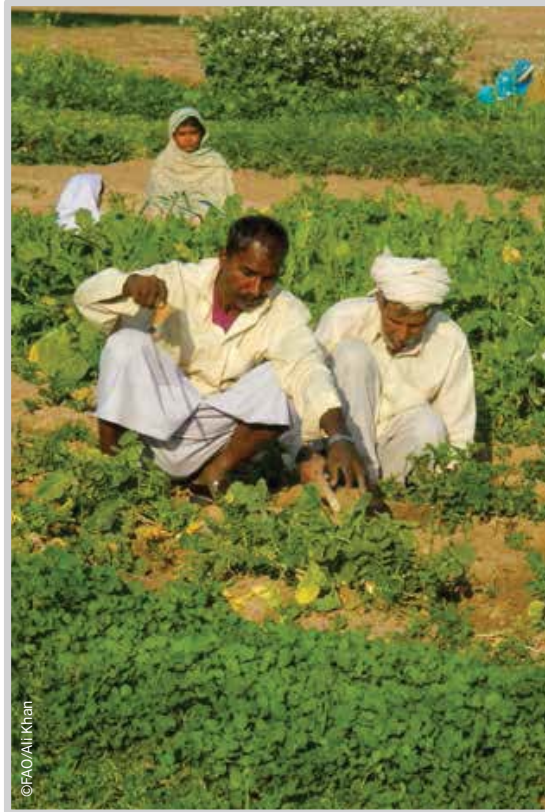
103 Nutrition Policy Guidance Notes, 2012-

104 Agriculture Extension Department, Government of Punjab

Extension workers are not available according to farmers in south Punjab especially women extension workers. Women farmers are not allowed to get training from male extension workers due to social norms. On the other hand, women extension workers in Punjab do not prefer to travel to distant areas because they lack transportation facilities.

Poor and older people including women also have limited access to social safety nets and even though, women have access to finance through microfinance institutions but majority of these loans are used by the male head of household.

Natural climatic change and its effects on livelihoods: Rural women are severely affected by the environmental degradation that is affecting their livelihoods. This deprivation has led to reduction in the quality and availability of land, forests, genetic, and aquatic resources in Punjab. Women's time burden on household and farm activities has increased and capacities to cope with the climate shocks has decreased. This is further deteriorating their health and livelihoods.



Although women contribute to agriculture activities, still there is a tremendous potential for increasing their share and income

Opportunities creation for Women Farmers: Considering the current percentage share of women in total population of Pakistan (about 49.19 percent)¹⁰⁵, growth and development in the country will remain a dream till the time women are mainstreamed in the economy. This is possible only by providing them an enabling working environment and culture. Agriculture is the popular activity in the rural setup so many opportunities exist in this sector for furthering women's development. Although women contribute to agriculture activities, still there is a tremendous potential for increasing their share and income. There is a need to strengthen their existing role, lessen their work burden and improve their access to finance and land ownership. They also need to be helped in becoming entrepreneurs through starting agriculture based small and medium enterprises that can help improve their income and generate more employment.

¹⁰⁵ Economic Survey of Pakistan 2012-2013, Chapter on Population



Improve literacy and skill development in women: Low literacy level among rural women reduces their access to extension services and skill development programs and limits their capacity to be employed. Women's education is more important than men's education because women further educate the children. There is need to start basic and functional literacy programs for women extensively so that they are able to learn and apply improved agricultural technologies and get employed.

Conserve natural resources: It is essential to strengthen the capability of rural women to manage and conserve natural resources including land, water, and the biodiversity base at household and community level. This can be done through creating awareness and teaching them conservation techniques. There is also a need to promote climate change adaptation through institutional strengthening and policy adjustments because the climate change and environmental challenges are likely to accelerate with population and economic growth and rising energy demands.

Sharing work burden: Women and men should be made more aware to have flexible working hours for women farmers in order to help them accommodate for household chores.

Diminish institutional biases: Attention should be given to protect women from abuse, exploitation and violence at the home by their counterparts and other family members. Old traditions and customs that harm women should be abolished to protect women rights. There is a need to eliminate all types of violence against women including physical, social, and psychological. Women should be given access to good nutrition, clean drinking water and sanitation, and health services.



Equal opportunity in access of capital, financial and natural resources: Women farmers should be provided equal access to productive assets and financial services including land, credit, extension services, and agriculture technology. Awareness should be raised in rural women on mitigation strategies including preventing soil erosion

and conserving rainwater. Skills related to establishing kitchen gardens, bee keeping, aquaculture and managing forest vegetation should also be promoted. There is a need to introduce innovation through provision of energy-saving stoves and biogas units that convert animal manure into energy. Forest products can also be used as medicinal herbs and women can earn from selling these products.

Women have low participation in the state structures and decision-making bodies in both social and political setup. It is critical to bring about substantive change in development policies and programs that lead to a shift in gender relations in the society.

There is need to conduct basic surveys to identify the varying problems of rural women in different agro-ecological and socio-economic zones so that appropriate interventions could be planned and implemented to address as required. There should be assistance for women in marketing their products through establishment of cooperatives.

Recommendations

- Agriculture extension department should include more women extension workers in the staff and should make them aware and committed of their role in improving women farmers' production capacity. The Women Extension Workers should be provided with proper administrative setup in rural areas along with transportation facilities and resources to reach women farmers in far flung areas.
- Women farmer's organizations should be formed at village and union council level to start networking related to agricultural production and livestock management and linking to the appropriate markets, for the uplift of agricultural economy and productivity.
- On-farm educational opportunities should be offered to address issues of women farmers related to agriculture. Individual Quick Frozen (IQF) vegetable and fruits processing plants should be introduced to women farmers in vegetable and fruit rich productive areas.
- Public and private universities should expand their outreach programs to rural areas and agriculture universities should establish women training centres focusing on rural women farmers and capacity building of rural women leaders.
- Local and national TV and radio channels in Punjab should promote role of rural women through case studies, village festivals, films, dramas, talk shows, documentaries, and commercials.
- Micro and small loans should be given to rural women for vegetable gardening, fruit production, livestock, food processing, preservation, value addition and enterprises development through existing financial institutions.
- Seasonal minor crops demand based training related to sowing, weeding, harvesting etc. should be designed and implemented for women farmers in central Punjab by Ayub Agricultural Research Institute (AARI), Faisalabad and in north Punjab by Barani Agricultural Research Institute (BARI), Chakwal.

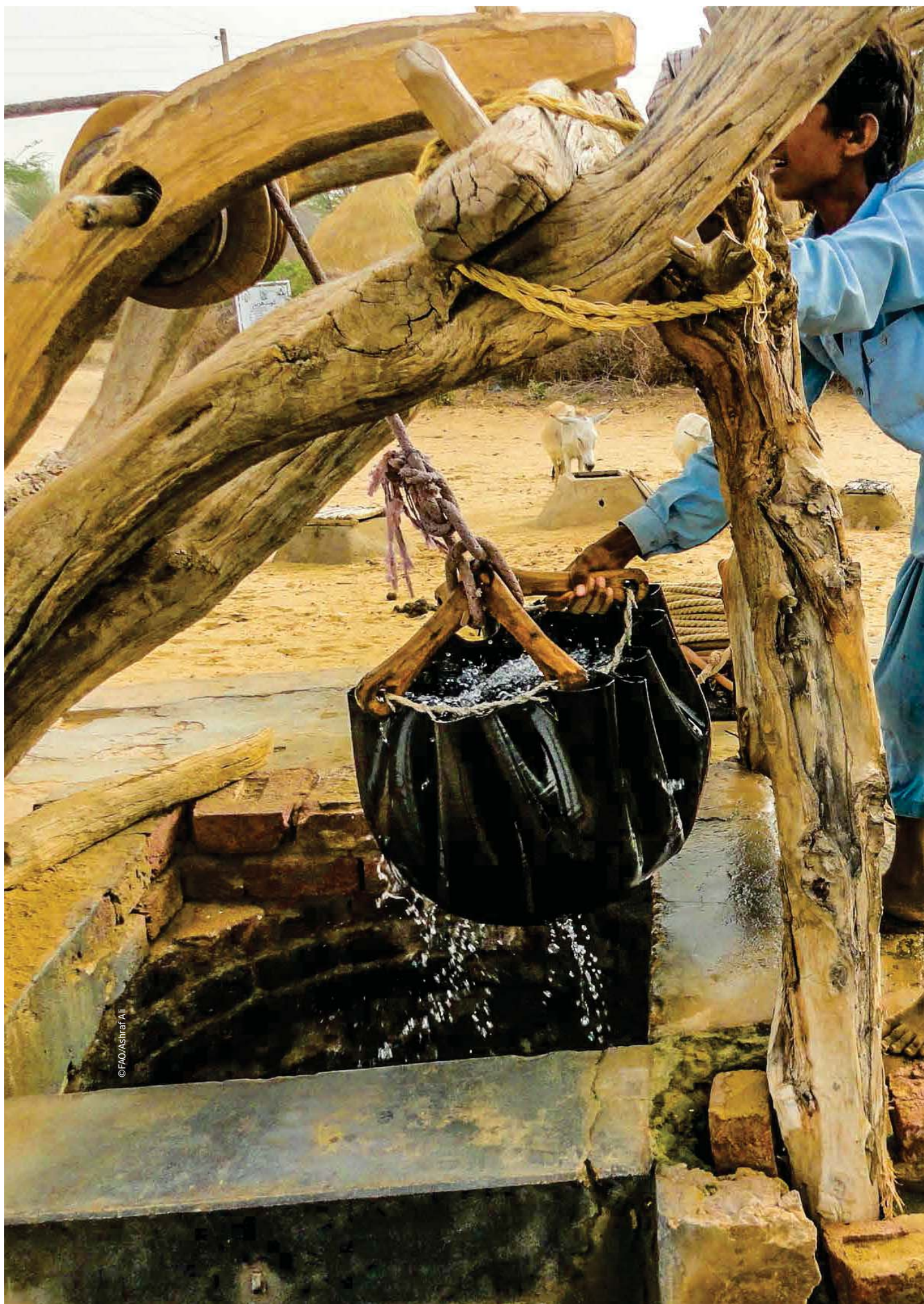


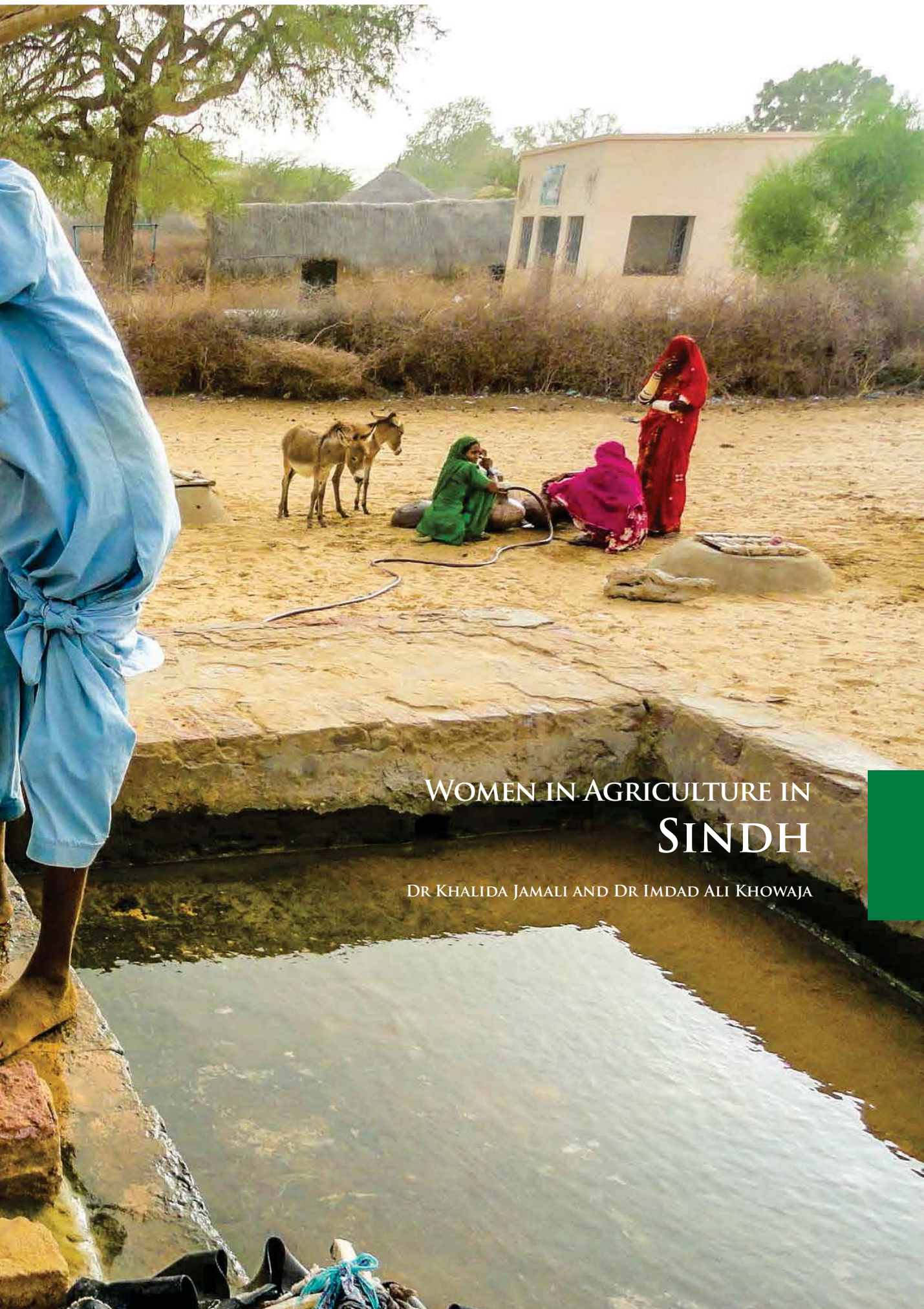


- Access should be given to women farmers in agriculture market committees. This will improve their decision making skills, increase their influence, and will position them for better bargaining.
- Seasonal agricultural festivals focused on women farmers' output in the agricultural farming should be conducted at village and tehsil level to raise awareness about their role and work and give them due appreciation and encouragement.
- At initiation of agriculture projects, high and realistic targets should be set for reaching women. Inclusion of women farmers in agricultural projects from planning to implementation phase will ensure that women benefit.
- Projects targeting rural women should focus on commodities such as small scale trading, small ruminant production and backyard vegetable, poultry and fruit production, which have traditionally been their domain along with introducing skills on wool management.
- There is need to help women in developing linkages within the agriculture value chain. The rural women in Punjab typically view themselves more as farm labourers than as household providers and income earners. This mind set needs to be changed through raising awareness among women and placing them better within the agriculture sector.
- At institutional level, there is need to involve rural communities, especially women in policy making, development planning, and climate change adaptation initiatives.
- Women's access to legal and political participation should be improved. Mandatory gender sensitization training should be designed for government officials who are responsible for budgeting, allocating resources and providing services in the field of agriculture and women development along with nomination of gender focal points in respective departments.
- Alliance should be made among professional organizations, academic institutions, community based organizations, civil society, political leaders and media to push forward the rural women development agenda.
- Organize national and international rural women's day to celebrate and recognize rural women's contribution to the overall society and the constraints they face.
- Men should be made aware of women's role and should be motivated to quit old customs, taboos, traditions, and beliefs that lead to women discrimination.
- Nutritional awareness should be raised for the rural masses about daily nutritional requirements, healthy eating patterns, wellness of mothers and children, appropriate cooking methods, food selection, value of food for money, preparation and storage practices and disposal. In awareness campaigns, community members should receive key messages to improve food utilization, change eating and cooking patterns, ensure exclusive breastfeeding for first six months, maintain dietary diversity, and consumption of macro and micronutrients.

- Cooking demonstrations as an intervention for raising awareness on nutrition and healthy eating should be initiated through electronic media. Cooking experts should allocate time in their programs on how rural households can meet their nutritional needs with limited resources. In print media, community nutrition experts can publish materials regarding mother and children's food and nutrition and distribute these among rural communities. Door to door nutritional campaign can be carried out on this issue.
- Nearly 50 percent of the fruits and vegetables are wasted due to lack of preservation techniques and cold chains. Preservation techniques and cold chains should be promoted including vacuum drying, osmotic drying, freeze drying, vegetable fermentation, curing, pickling, canning, freezing, refrigeration, pasteurization, modified-atmosphere packing, and wrapping. These techniques will help reduce wastage and increase profits.
- There is need to conduct food and nutrition assessments for specific population groups on regular intervals. Assessment surveys can then help develop specific initiatives that address issues identified through these assessments.
- Veterinarian clinics in Punjab are situated distantly and it is extremely difficult for rural farmers especially women to reach these. As an alternate, rural women should be trained in veterinary services so they can treat animals and vaccinate them.
- With responsibilities such as spraying pesticides and cotton picking, women are vulnerable to various side effects like body ache, swelling, skin rash, hypertension and menstruation problems. There is a need to raise awareness and train women in how to minimize these side effects.
- The quality and quantity of research related to women issues is not enough and does not meet international standards. Surveys at large scale to identify various problems faced by rural women in different agro-ecological and socio-economic zones need to be conducted in order to plan and implement programs that address these.







WOMEN IN AGRICULTURE IN SINDH

DR KHALIDA JAMALI AND DR IMDAD ALI KHOWAJA

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Background

Sindh is the second largest province of Pakistan in terms of population and economic output. It represents one of the oldest civilizations of the Indian subcontinent – the Indus civilization that flourished from 2,500 to 1,500 BC here. It is the most urbanized province with majority of population living in Karachi, which is Pakistan's economic hub. Sindh contributes almost 33 percent of the national Gross Domestic Product (GDP), largely because of Karachi¹⁰⁶. It covers 18 percent of Pakistan's total landmass¹⁰⁷.

Overall literacy rate is 60 percent (72 percent for males and 47 percent for females)¹⁰⁸. Gender Parity Index for primary and secondary education is 0.89 and 0.84



Sindh has a population of 42.4 million and about half of Sindh's population lives in urban

¹⁰⁶ Sindh Board of Investment, <http://www.sbi.gos.pk/sindh-economy.php>

¹⁰⁷ Sindh Board of Investment, <http://www.sbi.gos.pk/sindh-economy.php>

¹⁰⁸ PIHS, 2011-12

areas¹⁰⁹. The province of Sindh comprises of 24 districts that are further divided on the basis of their geographical position and climatic conditions in to three particular regions: upper, middle and lower Sindh commonly known in the local language as Siro, Wicholo, and Lar respectively. Agriculture and fisheries workers are 45.1 percent¹¹⁰ of the total workforce and 24.7 percent of Sindh¹¹¹.



Except Karachi, Sindh is mainly agriculture based. Its main crops include rice, cotton, wheat, sugarcane, mangoes, and bananas. Sindh is known for the quality and quantity of its cotton production. The province has plenty of natural resources including oil, gas, and coal.

Out of total 14 million hectares in Sindh, 5.45 million hectares are cultivable¹¹². The remaining area is either hills of Kirther Range, eastern desert of Thar and Achharo Thar, forest, or riverine. The Indus River flows in the middle of the province, still 60 percent of Sindh is arid¹¹³.

During last two decades, many people, mostly men migrated from rural to urban areas of Sindh or abroad in order to improve their income possibilities and to avoid exploitation from local landlords. Such conditions have given rural women an active role in on-farm and off-farm activities and has also increased their work burden and responsibilities. Women in Sindh are involved in crop production from sowing to harvesting stages, livestock rearing, and other allied fields of agriculture. Keeping in view the work of rural women in agriculture, they should be recognized as women farmers rather than sharecroppers or helpers. Women in rural Sindh work on average for 12-14 hours a day¹¹⁴.

109 Government of Sindh, <http://www.pwdsindh.gov.pk>

110 Economic Survey of Pakistan 2012-2013, http://finance.gov.pk/survey/chapters_13/12-Population.pdf

111 Sindh Employment Trends 2013, ILO, www.ilo.org/.../wcms_222494.pdf

112 <http://www.pakistaneconomist.com/issue2000/issue25/i&e2.htm>

113 <http://sindhforests.gov.pk/rangeland>

114 Women, Agriculture and Food Security, World Food Summit, FAO



Contribution of Women in Agriculture

The role of the rural women has not been recognized to the extent they contribute. Their involvement is actually more than men in crop production, livestock and dairy development, forestry, poultry, and fisheries sectors in Sindh but they are not appreciated due to local social and cultural norms. The traditional culture and practices are negatively influencing women's potential for increasing their gains in agriculture.

Rural women play an important part in agriculture sector activities and they are also responsible for household chores such as food preparation, fetching water and firewood, clothes washing, childcare and care of elder members of the family. They start their farm and non-farm activities along with household chores at sunrise and finish hours after dusk.

Women are involved in various primary and secondary cotton operations

Rice and cotton cultivation in Sindh jointly accounts for more than one-third of women's annual agricultural activities¹¹⁵. Similarly, women's participation is the highest in cotton production in Sindh as this is considered to be women led activity. In rice and cotton growing areas, rural women have been spending 39 percent and 50 percent of their time in related activities respectively. They are involved in various primary and secondary cotton operations including weeding and thinning, applying manure, hoeing, cotton cleaning, stick removing and storage of cotton seed for domestic use.



The author of this chapter conducted a sample survey in selected areas to come up with the figures presented in Table 1-9 below.

¹¹⁵ Asian Women in agriculture, environment, and rural production, FAO

Table 1: Allocation of rural Women's time in Cotton and Rice Production

Crop Production Activities	Mostly		Occasionally		Not at all	
	No. of Respondents	%	No. of Respondents	%	No. of Respondents	%
Land preparation	89	59	34	23	27	18
Land preparation	89	59	34	23	27	18
Sowing	82	55	57	38	11	7
Sealing	91	61	42	28	17	11
Pesticides	69	46	47	31	34	23
Bringing fodder	97	65	46	31	7	5
Weeding	109	73	23	15	18	12
Harvesting	129	86	14	9	7	5
Binding	86	57	47	31	17	11
Threshing	99	66	44	29	7	5
Drying	101	67	33	22	16	11
Storage of cereals & seeds	116	77	22	15	12	8
Selling of agricultural commodities	49	33	36	24	65	43
Cotton picking	114	76	34	23	2	1

Source: Primary data collected by the authors of this chapter.



Based on this table, it can be envisaged that on average 60 percent rural women contribute to or participate in pre-harvesting activities. Similarly, during post-harvesting activities, 76 percent women contribute in cotton picking and only 33 percent in cotton marketing. In summary, 78 percent of the rural women work in pre and post harvest activities during production of rice and cotton. Harvesting and post-harvesting activities include binding, threshing, drying, and storage of cereals and seeds by rural women. Women's role in selling of agriculture commodities is quite low at only 33 percent.

Table 2: The ranking of the rural women involvement in overall crop production.

Crop Production Activities	Mean	Score	Ranks
Land Preparation	2.41	362	11
Sowing	2.47	371	9
Sealing	2.49	374	8
Spreading Chemical	2.23	335	12
Taking off Fodder	2.60	390	6
Weeding	2.61	391	5
Harvesting	2.81	422	1
Binding	2.46	369	10
Threshing	2.61	392	4
Drying	2.57	385	7
Storage of Cereals and seed	2.69	404	3
Selling of agricultural Commodities	1.89	284	13
Cotton Picking	2.75	412	2

Source: Primary data collected by the authors of this chapter.



When it comes to livestock management, Labour Force Survey 2006-2007 of Pakistan highlights that 31 percent of the women are involved in stall-feeding of animals, 58 percent in milking and milk processing, 90 percent in preparing dung cakes, 90 percent in shed cleaning, 85 percent in collection of farm yard manure, and 69 percent in watering animals. Men share the responsibility of taking care of sick animals. This makes it evident that women are playing a dominant role in the livestock production and management activities in Sindh.

Contribution of rural women in livestock management is significant. Table 3 and 4 below show the results of a primary data collected by the author that more than the 70 percent of rural women are involved in livestock management on a regular basis along with their other daily routine tasks. 81 percent of rural women clean animal sheds, 70 percent water animals, 67 percent milk animals, 77 percent process milk to extract oil, 82 percent do poultry husbandry, 88 percent are responsible for grazing of animals, and 73 percent for feeding animals.

Table 3: Participation of rural women in Livestock Activities

Crop Production Activities	Mostly		Occasionally		Not at all	
	No. of Respond-ents	%	No. of Respond-ents	%	No. of Respond-ents	%
Cleaning of Animal Sheds	121	81	22	15	7	5
Watering animal	123	82	25	17	2	1
Milking of animals	101	67	38	25	11	7
Preparing Ghee	115	77	21	14	14	9
Egg Collection of poultry birds	123	82	21	14	6	4
Grazing of animals	88	59	47	31	15	10
Feeding of animals	110	73	38	25	2	1

Source: Primary data collected by the authors of this chapter.

Table 4: Ranking of Rural Women's Participation in Livestock Activities

Crop Production Activities	Mean	Score	Ranks
Cleaning of Animal Sheds	2.76	414	3
Watering animal	2.81	421	1
Milking of animals	2.60	390	6
Preparing Ghee	2.67	401	5
Egg Collection of poultry birds	2.78	417	2
Grazing of animals	2.49	373	7
Feeding of animals	2.72	408	4

Source: Primary data collected by the authors of this chapter.

Table 4 provides the rankings on the basis of allocation and distribution of work of rural women in the livestock activities. Watering is ranked on the top followed by collection of eggs and cleaning of animal sheds.



As compared to men, women involvement is significant in terms of taking related household level decisions

Majority rural families in Sindh rear poultry. The women collect eggs regularly and sell poultry products such as eggs and meat. They use traditional methods and experience of senior family members to manage and improve poultry production and it shows that livestock and poultry are a major source of income for rural women.

In addition to agricultural activities, women often devote time and resources towards improving household food security. As compared to men, their involvement is significant in terms of taking related household level decisions.

Due to time constraints, lack of opportunities and illiteracy, rural women have limited access to extension services. Allocation of rural women's work in the household is given in table 5 below.

Table 5: Allocation of Rural Women time in Household Activities

Crop Production Activities	Mostly		Occasionally		Not at all	
	No. of Respond-ents	%	No. of Respond-ents	%	No. of Respond-ents	%
Food Preparation	143	95	7	5	1	1
Fuel Collection	103	69	35	23	12	8
Embroidery	67	45	56	37	27	18
Knitting	92	61	44	29	14	9
Other handicrafts	56	37	86	57	8	5
Lookafter family members	141	94	9	6	0	0

Source: Primary data collected by the authors of this chapter.



Table 5 show that more than 92 percent rural women are involved in preparing food and looking after the family members including their husband, children and elders. 69 percent fetch firewood, 61 percent do embroidery, and 37 percent knitting to improve their income. Table 6 shows the ranking of their household chores, with food preparation at the top followed by family care, and fetching firewood.

Table 6: Ranking of Rural Women Household Activities

Crop Production Activities	Mean	Score	Ranks
Food Preparation	2.94	441	1
Fetch firing woods for fuel	2.61	391	3
Embroidery	2.27	340	6
Knitting	2.52	378	4
Other handicrafts	2.32	348	5
Lookafter the family members	2.92	438	2

Source: Primary data collected by the authors of this chapter.



Women in rural Sindh have poor access to education, healthcare and nutrition services due to dearth of these facilities and social taboos on their mobility and low levels of income due to prevalent poverty. The health effects are compounded by use of fertilizers and pesticides. Also gender disparity creates issues because boys are given preference over girls. Women remain unskilled, are physically and psychologically weak, and nutritionally malnourished. Unemployment, landlessness, low wages and increase in prices of consumer goods further adds to the situation and contributes to a vicious cycle of poverty.



When agriculture activities stagnate during droughts and other natural disasters, women work as seasonal wage earners

When agriculture activities stagnate during droughts and other natural disasters, women work as seasonal wage earners. Their wages are quite low in comparison to men and landlords don't even provide them with drinking water facilities. Women also perform most of the operations manually by using tools like sickle, spade, pickaxe, winnowing baskets, cloth, rope etc. Women use these outdated tools more as compared to men. Rural women represent 48.2 percent of total labour input for winter crops and 48.6 percent for summer crops but only 5 percent own land¹¹⁶. Getting women their share in income based on their labour input and access to land ownership, can help pull them out of poverty and increase their income.



Rural Women's involvement in Off-farm activities

Forestry: The area under forest covers 1.125 million hectares of land in Sindh¹¹⁷. This is reducing due to misuse and exploitation resulting in the decline of forest area and production. Rural women of south Sindh, use forest as a source for saving on the household income through collecting free firewood and fodder for domestic animals. It is their daily routine to take animals for grazing. For these chores, women cover long distances of 4 to 5 km every day.

Fisheries: Traditionally, women belonging to riverine areas are involved in fishing and manage the catch and sale. Women involved in fishing used to provide their families good nourishment as they earned well. Now this activity is on decline because of reduction of

¹¹⁶ Source: Primary data collected by the author of this chapter

¹¹⁷ Sindh Forest Department, <http://sindhforests.gov.pk/overview>

freshwater in the Indus and interventions by larger fishing companies that do fishing on a commercial scale. Women in the coastal areas of Sindh are involved in peeling shrimps, weaving fish net, making fish baskets, weaving mats and making handicrafts.

Horticulture: In the area under orchards in a few districts including Hyderabad, TandoAllahyar, and Mirpurkhas, different types of flowers are cultivated especially roses, rabail, tulips while many types of fruits like mangoes, guava, banana, oranges, papaya, etc. are also cultivated. Women play an important role in horticulture by getting involved in activities like picking, peeling, and weeding. These women mostly come from poorer districts and work as wage earners.

Mostly women's mobility rarely extends beyond their field. They are culturally constrained to participate in production and related activities and do not cross the boundaries defined by male family members.



Key constraints

Rural women in the agriculture sector do not have access to latest technologies and techniques for crop production, livestock management, poultry husbandry, forestry, fish farming, etc. The reason is weak extension services and illiteracy among women

Physical environment plays essential part in the productivity and performance of a worker. In a sample survey conducted by the author of this chapter in selected areas of Sindh, 74 percent of the rural women respondents gave the following views in term of the behaviour of landlords with them.

Table 7: View of the Rural Women respondents regarding behaviour of Landlords

Behaviour of Land Lords	No. of Respondents	%
Good	39	26
Satisfactory	55	37
Not good enough	32	21
Bad	24	16
Total	150	100

Source: Primary data collected by the authors of this chapter.



Table 8 and 9 shows the major sources of information and their ranking for rural women. 97 percent of women get information from their husbands or family elders, only 7 percent get information from electronic and print media. Extension services were ranked as the last source.

Table 8: Information Sources

Information sources	Mostly		Occasionally		Not at all	
	No. of Respondents	%	No. of Respondents	%	No. of Respondents	%
Television	36	24	51	34	63	42
Radio	47	31	28	19	75	50
Print media (i.e. news papers, magazines, newsletters etc.)	11	7	19	13	120	80
Agricultural sectors field Staff	7	5	26	17	117	78
Non-Government Organizations	47	31	58	39	45	30
Husband or father of the Family	97	65	41	27	12	8
Fellow Farmers	69	46	53	35	28	19

Source: Primary data collected by the authors of this chapter.

Table 9: Ranking of the Information Source

Crop Production Activities	Mean	Score	Ranks
Television	1.82	273	4
Radio	1.81	272	5
Print media (i.e. news papers, magazines, newsletters etc.)	1.27	191	6
Field staff of agricultural sectors	1.27	190	7
Non-government organizations(regional or national)	2.01	302	3
Head of family (i.e. husband, or elder) and land lords)	2.57	385	1
Fellow women in agriculture and its allied fields	2.27	341	2

Source: Primary data collected by the authors of this chapter.

Due to the lack of market information, female farmers in Sindh are not able to get a better price of their livestock, forestry, poultry, and other handmade products.

Other constraints identified include:

1. Lack of access to educational and vocational training facilities and weak vocational training infrastructure that limits women's ability to improve their agriculture productivity and income.

2. Lack of access to finance for both women and men because of collateral issues and high interest rates.
3. Disparities in daily wage rates and working hours of women and men.
4. Women farmers have knowledge about using solar energy for their tube wells and other machinery but lack financial capacity to install these.
5. Increased burden of on-farm and off-farm activities, lack of clean drinking water, appropriate sanitation facilities, low and poor quality health services and imbalanced intake of food affects women's health and makes them prone to diseases. Many a times, they do not receive the required medical treatment due to financial constraints or further suffer in the hands of quacks. This has also increased the prevalence of hepatitis in many areas. Maternal anaemia is very high and 62 percent pregnant and nearly 60 percent non pregnant mothers are having low haemoglobin levels. 24 percent mothers (married women of child bearing age) are underweight. Around 50 percent children under five years of age are stunted(low height for age)¹¹⁸.
6. Women farmers are not given access to mechanized farm equipment that makes them perform most of the activities manually and increases their workload. This is affecting women's productivity and wage rate.
7. Women's are also having limited access to markets because of a patriarchal society.



118 Pakistan National Nutrition Survey, 2011



Recommendations

- Rural women promotional activities should be started in rural Sindh on a public private partnership basis with the aim of creating awareness regarding rural women's contribution in agriculture production along with providing them a platform for marketing and generating profits. This will promote talent in women and increase the quality of their manufactured products.
- Women specific technical institutions should be established and made functional to improve their technical knowledge in agriculture production and management.
- Agriculture extension training programs need to be conducted at the Union Council or village level rather than in towns and cities. This will help rural women gain knowledge and awareness on new techniques that they can use for crop and vegetable production, livestock rearing, forestry, poultry and fisheries.
- Government and private sector should facilitate women in promoting cottage industry through skills development and providing easy access to finance, especially in coastal belt of Badin and Thatta. This will especially help women in these areas to generate income because their social status does not allow them to cross the geographical boundaries.
- Women should be made aware and empowered on how to get a better price of their agriculture, livestock, poultry, forestry, embroidery and other handmade products.
- Government should develop and implement a regulatory framework that provides safety and security to women and define their legal and constitutional rights in the agriculture sector.
- Government should develop policies that improve equitable access of basic social services for the vulnerable and marginalized population.
- General awareness should be raised using media on how women can improve their productivity and income through on-farm and off-farm activities.
- Government should improve women's access to formal and non-formal education, technical and vocational skill development and finance. It will help reduce poverty and diversify income opportunities.
- Government should eliminate gender inequality and injustice by providing social, economic, and legal rights to women and ensure implementation of such laws.
- Rural women's work as unpaid labour should be counted in official statistics. This will provide social justice.
- Difference between women and men's wage rate for the same work should be minimized.



- Government should improve women's access to markets.

- Awareness programs should be initiated that educate men to better understand and respect the role of women in a rural society, share responsibilities and involve them in decision making. This can also be done through literacy programmes, street theatres, and electronic and print media.



- Functioning of Extension department should be improved, especially related to women extension workers, to improve their outreach to women farmers. This will help women farmers better understand and use the latest technologies in agriculture and associated subsectors like livestock, poultry, and fisheries
- Women should also be trained in processing and preservation of food crops, fruits, vegetables, meat, and fish.
- Data recorded by the government on agriculture and its subsectors, should be gender disaggregated.
- Married women are more involved in agriculture activities in comparison to unmarried women because they need to support a large family. Government should promote family planning and childcare to reduce women's burden.
- Government should raise awareness among women through their extension departments on appropriate nutrition for themselves and children.
- Measures should be introduced to minimize occupational hazards in agriculture on men and women including the effects of spraying pesticides and applying fertilizers. More over organic agriculture practices should be prompted.



Conclusion

Based on the analysis of different provinces and regions in this report, it is suggested that the main thrust of the federal and provincial governments in Pakistan should be the development of a domestic institutional capacity that permits Pakistan to develop and to apply modern agricultural practices as well as scientifically improved inputs. This should take into account the demand for goods and services by the bulk of small men and women farmers, as this will offer an important stimulus to off-farm rural enterprise and to the generation of better employment opportunities for landless labourers presently engaged in subsistence agriculture, especially women as they are the main contributors in agriculture development. Certain key recommendations are summarized below in light of the province and region specific chapters:

1. Government of Pakistan should design an integrative system as to support women farmers in all agriculture related sectors e.g. financial services, land reforms and tenure system, tax reforms and subsidies, technology transfer, inputs distribution, market access along with ensuring implementation at the grass root level. Women's participation in community land distribution decisions should be encouraged. Provision of certified seeds and planting material of improved quality on subsidized rates to women farmers will make a significant difference in crop production and ensuring household food security.
2. Provincial and Regional Agriculture Policies, strategies and action plans should give due priority to address the needs and demands of women farmers based on their role and potential in different geographic regions, along with introduction of women friendly technologies which save their time, reduce the manual effort and improve quality and quantity of food production.
3. Initiatives should be taken to accurately record and reflect timely data particularly sex disaggregated data about female contribution in agriculture at the provincial, regional and the country level.
4. Make the extension system improved to cover female farmer's needs and enhance their knowledge and skills on farm related activities, livestock management, animal health care, improved water management practices, and use of technological equipments,. These efforts should be aligned with introduction of international best practices like Farmer Field Schools (FFS); Women Open Schools (WOS) and women farmer to farmer trainings in order to have a multiplier effect in knowledge dissemination.
5. The developmental project run by different agencies should establish women organizations/cooperatives in agriculture and its sub-sectors like Agha Khan Rural Support Programme (AKRSP) did in Northern areas. In most of the projects, women are only involved for handicrafts/ sewing /stitching and embroidery works and not in natural resource management activities.

6. Policy reforms should be introduced to encourage rural agro-based small-scale industries, which would help in diversifying agricultural resources and will generate employment for the rural women.
7. Women should be made familiar with the methods of food processing and food preservation of various fruits, vegetables and livestock products, which would serve as a value addition to economic productivity. Livestock should be treated as financial, physical and natural capital for rural women and necessary services must be ensured in this regard. Processing, local use and export of packaged organic Halal meat and beef in the international market, processing of skin and hides, establishment of sausage, wool and small scale handicrafts industry and dairy development, benefiting especially the women farmers should be introduced.
8. At the beginning of agricultural development projects, realistic targets should be set for the numbers of women farmers to be reached, involved and improved in the subsectors of agriculture. Inclusion of women farmers in agricultural projects from planning to implementation phase will assume leadership roles. Projects targeting rural women should focus on commodities such as small scale trading, small ruminant production and backyard vegetable, fruit production as their incomes can rise. Training should be organized on post-harvest activities e.g. drying, storage, cleaning/sorting of grain and packing in order to reduce post harvest losses.
9. The capacity of the rural women should be build in value addition of the agricultural products to increase the profit margins along with creation of effective market linkages and improving access.
10. At institutional level, including village, tehsil and district levels, rural communities, especially women should be involved, in the policy making, development planning, and carrying out of climate change adaptation initiatives in development and adaptation plans and policies of specific regions, further building and improving their resilience capacities.
11. At organizational level, work should be carried out on identifying and eliminating factors that limit women's capacity to adapt by providing social, legal, moral and political support. Mandatory gender sensitization training should be designed for government officials/officers who are responsible for budgeting, allocating resources and providing services in the field of agriculture and women development, nominate gender focal points and ensure use of gender disaggregated data. Work done by women in agriculture, livestock, poultry, fisheries, forestry, horticulture and craft making should be recorded and recognized and used in decision making process.
12. Public private partnership should be created between public sector agencies and highly women focused civil society organizations to extend the services to remote areas for genuine women agricultural development through financing, providing infrastructure, farm power and services. Rural women promotional activities should be started at the

village, tehsil, district, provincial and regional levels, in order to appreciate their efforts, encouraging them, and providing them a platform for marketing and generating profits.

13. Emphasis on cottage industries should be given, as there is high level of women's participation. Relief in energy cost, taxes and other incentives be provided as it will affect their earnings and attract them to establish labour intensive agro-based industries which create job opportunities for men and women in seasonal lean period to earn income.
14. The domestication and cultivation of precious herbs/medicinal and aromatic plants and production of mushrooms, honey and growing of high value crops should be promoted in rural farming communities, particularly women farmers, along with production technologies enabling them to get more income from per unit area of their farm. Nursery raising and selling of fruit and fodder plants is another area for women farmers engagement. There is need to create awareness about alternate potentials; like intensification, selection of short duration high return crops, adoption of cash crops and/or cut-flowers (gladiolus, tube rose etc) and improved practices/production technologies of various cash and other crops.
15. The expansion and improvement of social services including health, nutrition, population and education services is extensively needed to improve the health status, better physical, social, psychological and mental development of women leading to increased economic gains by them and the society as a whole.
16. Rural women's work as unpaid labour be counted in official statistics, recognized at the policy level and honour them as "women farmer". It will provide social justice and women empowerment, and reduce poverty. Moreover wage gap of men and women shows inequality and therefore should be addressed, allowing women empowerment in farm or non-farm sectors. There is dire need to register women farmers as formal agriculture service providers on the basis of social collateral to ensure their rights to basic agriculture services are addressed.



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